

HAND DELIVERED

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**Final**  
**POST-CLOSURE PERMIT**

Utah Division of Solid  
and Hazardous Waste



# UTAH HAZARDOUS WASTE POST-CLOSURE PERMIT

For Post-Closure Care  
of  
Three Closed  
Hazardous Waste Surface Impoundments  
and  
Facility-Wide Corrective Action

Issued To

United States Steel Corporation, (USS)  
and  
Geneva Steel LLC

EPA Identification Number UTD009086133

Issued  
May 14, 2004

May 14, 2004

**STATE OF UTAH PERMIT**

**Permittee:**

**United States Steel Corporation (USS)**

**and**

**Geneva Steel LLC**

**Utah County, Utah**

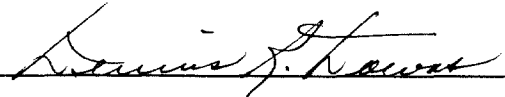
**EPA Identification Number UTD009086133**

Pursuant to the Utah Solid and Hazardous Waste Act, (the Act), 19-6-101, et. seq., Utah Code Annotated (UCA) 1953, as amended and the Utah Administrative Rules (R315-1 through R315-13, R315-50, and R315-101) as adopted by the Utah Solid and Hazardous Waste Control Board, (the Board), a permit is issued to United States Steel Corporation (USS) and Geneva Steel LLC thereafter called the Permittee, to conduct Post-Closure Care of three hazardous waste surface impoundments closed in place and to conduct facility-wide corrective action at Geneva Steel, 10 South Geneva Road, Vineyard, Utah, 84058. The U.S. Environmental Protection Agency (U.S. EPA) has authorized the Executive Secretary to issue such a permit under Section 3006(b) of the Resource Conservation and Recovery Act (RCRA).

The Permittee shall comply with all the terms and conditions of this permit, including all reports and attachments, which are hereby incorporated by reference. The Permittee shall also comply with the applicable portions of R315-1 through R315-13, R315-50, and R315-101. Applicable rules are those, which are in effect on the date of issuance of this permit.

This permit is based on the premise that the information submitted in the application dated November 3, 1986 as modified by subsequent amendments dated July 18, 1987 and September 30, 1988 and in the request for reissuance of December 22, 1998, (hereafter referred to as the application), is accurate, except as modified by the conditions herein. Any inaccuracies or misrepresentations found in the application may be grounds for the termination, modification, revocation or reissuance of this permit (see R315-3-4). The Permittee must inform the Control Board of any deviation from, or changes in the information in the application, which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This permit is effective as of **May 14, 2004** and shall remain in effect until **May 14, 2014**, unless revoked and reissued (R315-3-4.2) or terminated (R315-3-4.4), or continued in accordance with R315-3-5(d).

Signature: 

Date: 5/14/04

Dennis R. Downs  
Executive Secretary  
Utah Solid and Hazardous Wastes Control Board

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AND SCHEDULE OF COMPLIANCE



## **LIST OF ATTACHMENTS**

The following documents are hereby incorporated, in their entirety, by reference, into this permit.

### **Attachment 1**

SWMU list with Responsible Permittee List

### **Attachment 2**

Inspection Check List, Schedules And Procedures, Interceptor Trench Maintenance procedures

### **Attachment 3**

Facility Maps with monitoring well locations

- Hazardous Waste Impoundments with monitoring well locations
- Facility Map Production Process Areas and Major Site Features, March 2001
- Facility Raster Image with Approximate SWMU and SWMUG Boundaries and Perimeter Groundwater Monitoring Network US Steel/Geneva Steel, March 2001

### **Attachment 4**

Sampling Procedures, Test Methods and Quality Control/Quality Assurance Program

### **Attachment 5**

Statistical Analysis

### **Attachment 6**

Monitoring Well Sampling Requirements

## DEFINITIONS

For purposes of this permit, the following definitions shall apply:

**"Approved or Approval"** means written approval from the Executive Secretary of the Utah Solid and Hazardous Waste Control Board.

**"Control Board"** means the Utah Solid and Hazardous Waste Control Board.

**"Executive Secretary"** means the Executive Secretary of the Utah Solid and Hazardous Waste Control Board.

**"Facility"** means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them). For the purpose of implementing corrective action under R315-8-6.12, facility means all contiguous property under the control of the owner or operator seeking a permit under subtitle C of RCRA. This definition also applies to facilities implementing corrective action under RCRA Section 3008(h). A remediation waste management site is not a facility that is subject to R315-8-6.12, but is subject to corrective action requirements if the site is located within such a facility.

**"Hazardous waste constituent"** means a constituent that caused the Board to list the hazardous waste in R315-2-3 and R315-2-10.

**"Hazardous Waste Impoundments"** (HWI) means all structures, and other appurtenances, and improvements on the land at the three Closed Hazardous Waste Impoundments, including the groundwater collection system and the groundwater monitoring system at those Impoundments, and all other appurtenances and fixtures associated with post-closure care of the Impoundment.

**"Closed Hazardous Waste Impoundments"** (CHWI) means the closed Acid Waste Impoundment, the closed Tar Decanter Sludge Impoundment, and the closed Miscellaneous Waste Impoundment. The property description of these impoundments is presented on the survey maps in Attachment 3.

**"Permittee"** means United States Steel Corporation (USS) and Geneva Steel LLC. The **"Responsible Permittee"** is that Permittee who is accountable to the Executive Secretary of the Utah Solid and Hazardous Waste Control Board for satisfying those Permit conditions for which it is so designated. With respect to these conditions, the Permit designates either Geneva Steel or USS or both to be the responsible Permittee.

**"Precipitation"** means rain, sleet, snow or hail.

**"RCRA"** means the Resource Conservation and Recovery Act of 1976, as amended by The Solid and Hazardous Waste Amendments (HSWA) of 1984.

**"Solid Waste Management Unit"** (SWMU) means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released.

**"Solid Waste Management Unit Group"** (SWMUG) means SWMUs grouped together based on facility process unit areas.

**"Spill"** means the accidental discharging, spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous wastes or materials which, when spilled, become hazardous wastes, into or on any land or water.

**"Submit" or "Submission"** means to be received by hand delivery, mail, certified mail, express mail, facsimile, or computer diskette and logged in at the offices of the Division of Solid and Hazardous Waste.

**"Utah Registered Professional Engineer"** means any individual who is registered as a Professional Engineer by the Utah Department of Business Regulation.

All definitions contained in R315-1, R315-2, R315-3, R315-8, and R315-9 are hereby incorporated, in their entirety, by reference into this permit, except that any of the definitions used above shall supersede any definition of the same term given in R315. Where terms are not defined in the regulations or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

## **MODULE I - STANDARD CONDITIONS**

- I.A.1 This Post-Closure Care Permit (Permit) is issued to both Geneva Steel LLC (Geneva Steel) and United States Steel Corporation (USS) as Co-Permittees for the Geneva Steel facility.
- I.A.2 The Permit acknowledges that the parties have by contract allocated responsibilities and liabilities for post-closure care and corrective action for solid waste management units (SWMUs) and affixes responsibilities and duties under the Permit to USS, to Geneva Steel, or, in some cases, to both of them based on those contractual arrangements.
- I.A.3 Modules I through IV address post-closure care of three closed hazardous waste surface impoundments (Acid Sludge Impoundment, Tar Decanter Sludge Impoundment, and Miscellaneous Waste Impoundment, (CHWI) including the groundwater collection system and the groundwater monitoring system at those HWI, and all other appurtenances and fixtures associated with post-closure care of the HWI. The Permit makes USS the Responsible Permittee with respect to post-closure care of the HWI. Geneva Steel, nevertheless, is Responsible for certain support activities relating to post-closure care as expressly set forth in pertinent conditions in Modules I through IV.
- I.A.4 Module V addresses corrective action for SWMUs at the Geneva Steel facility. The Permit allocates responsibility based on certain contractual arrangements between Geneva Steel and USS as outlined in Attachment 1.
- I.B EFFECT OF PERMIT**
- I.B.1 USS shall provide post-closure care and monitoring for the CHWI in accordance with the conditions of this Permit. Any treatment, storage, or disposal of hazardous waste at the HWI not authorized in this Permit or applicable rules is prohibited.
- I.B.2 Compliance with this Permit constitutes compliance with the conditions of the Utah Solid and Hazardous Waste Act and the Utah Hazardous Waste Management Rules setting forth the requirements for the CHWI, with the exceptions provided in R315-3-1.4
- I.B.3 Geneva Steel is the registered property owner and shall provide reasonable cooperation to USS to enable USS to comply with the applicable provisions of this Permit.
- I.B.4 Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local law or regulation.

**I.C ENFORCEABILITY**

- I.C.1 Violations of this Permit, the Utah Solid and Hazardous Waste Act, or the Utah Hazardous Waste Management Rules may result in penalties of up to \$10,000 per calendar day per violation.

**I.D OTHER AUTHORITY**

- I.D.1 The Utah Department of Environmental Quality expressly reserves any right of entry provided by law and all authority under applicable law to order or perform emergency or other response activities as authorized by law.

**I.E PERMIT ACTIONS**

- I.E.1 This Permit may be modified, revoked and reissued, or terminated for cause as specified in R315-3-4.
- I.E.2 The filing of a request for a Permit modification, revocation and reissuance, or termination, or a notification of planned changes, requiring prior agency approval, or anticipated noncompliance on the part of Responsible Permittee(s) does not stay the applicability or enforceability of any Permit condition.
- I.E.3 If a conflict exists between conditions within this Permit, the Executive Secretary shall determine which condition shall be met. In the event that such a conflict is discovered, the Executive Secretary shall provide written notice of his determination and shall allow the Responsible Permittee(s) reasonable time to meet the condition.
- I.E.4 Any change to this permit constitutes a modification. The permit may be modified at the request of the Permittee in accordance with the procedures of R315-3-4.3.
- I.E.5 In accordance with the Utah Solid and Hazardous Waste Act, UCA, 19-6-108 (13), this Permit shall be reviewed five years after the effective date and modified as deemed necessary by the Executive Secretary.

**I.F SEVERABILITY**

- I.F.1 The provisions of this Permit are severable and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. Invalidation of any state or federal statutory or regulatory provision, which forms the basis for any condition of this Permit, does not affect the validity of any other state or federal statutory or regulatory basis for said condition.

**I.G DUTIES TO COMPLY**

- I.G.1 USS and Geneva Steel shall comply with all applicable conditions of this Permit consistent with the division of responsibility set forth herein, except to the extent and for the duration such noncompliance is authorized by an emergency permit issued in accordance with R315-3-6.2(a). Any Permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of the Utah Solid and Hazardous Waste Act, and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit approval renewal application, or a combination of enforcement action and any other remedies provided by law.

**I.H DUTY TO REAPPLY**

- I.H.1 The Permittees shall submit an application for a new Permit on or before **November 15, 2013**.

**I.I PERMIT EXPIRATION**

- I.I.1 This Permit shall be effective for ten years from the date of issuance.

**I.J CONTINUATION OF EXPIRING PERMIT**

- I.J.1 This Permit and all conditions herein shall continue in force until the effective date of a new permit if the Permittees have submitted a timely application pursuant to R315-3-2.5 and the applicable requirements of R315-3-5.2 and R315-3-2.5(c); the application for a permit is complete; and, through no fault of the Permittees, the Executive Secretary has not issued a new permit under R315-3-5 on or before the expiration date of this Permit.

**I.K NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE**

- I.K.1 It shall not be a defense for the Permittees in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit.

**I.L DUTY TO MITIGATE**

- I.L.1 In the event of noncompliance with this Permit, the Permittee(s) responsible for such noncompliance shall take all reasonable steps to minimize releases to the environment resulting from the noncompliance, and shall carry out such measures as are reasonable to prevent significant adverse impact on human health or the environment.

**I.M PROPER OPERATION AND MAINTENANCE**

- I.M.1 Each Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances, machinery, and equipment) which are installed or used by that Permittee to achieve compliance with the conditions of this Permit. This provision requires the operation of back-up or auxiliary equipment or similar systems only when necessary to achieve compliance with the conditions of this Permit.

**I.N DUTY TO PROVIDE INFORMATION**

- I.N.1 Each Permittee shall furnish to the Executive Secretary within a reasonable time any relevant information in the possession or control of that Permittee which the Executive Secretary may request to determine compliance with this Permit, or to determine whether cause exists for modifying, revoking, reissuing, or terminating this Permit. Each Permittee shall also furnish to the Executive Secretary, upon request, copies of records that such Permittee is required by this Permit to keep.
- I.N.2 Failure to submit the information required by the conditions of this Permit or falsification of any submitted information is grounds for enforcement action under the terms of the Utah Solid and Hazardous Waste Act.
- I.N.3 The Responsible Permittee(s) shall ensure that all plans, reports, notifications, and other submissions to the Executive Secretary as required by this Permit are signed and certified in accordance with this Permit.
- I.N.4. The Responsible Permittee(s) shall submit one copy of all plans, reports, notifications, or other submissions, required by the Permit to be submitted to the Executive Secretary unless otherwise agreed upon.
- I.N.5 All plans and schedules including revisions to previously submitted plans and schedules required by the conditions of this Permit are, upon written approval by the Executive Secretary, incorporated into this Permit by reference and become an enforceable part of this Permit. This incorporation does not require a permit modification. Any noncompliance with such approved plans and schedules shall constitute noncompliance with this Permit.
- I.N.6. The Executive Secretary may grant written approval in response to requests for extensions of due date(s) by the Responsible Permittee(s).
- I.N.7 If the Executive Secretary determines that further actions beyond those provided by the Permit conditions or changes to that which is stated herein are warranted, the Executive Secretary may seek to modify the Permit consistent with applicable laws and regulations.

- I.N.8. All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to the Permit shall be maintained at Geneva Steel throughout the post-closure period.

**I.O INSPECTION AND ENTRY**

- I.O.1 Pursuant to R315-2-12 and UAC 19-6-109, Geneva Steel shall allow the Control Board, the Executive Secretary, or an authorized representative, upon the presentation of appropriate credentials and other documents as may be required by law to:
- I.O.1.a Enter at reasonable times upon the premises where a regulated facility or activity is located or conducted, or where records are kept as required by the conditions of this Permit;
- I.O.1.b Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;
- I.O.1.c Inspect at reasonable times any portion of the CHWI equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit;
- I.O.1.d Sample or monitor at reasonable times for the purposes of assuring Permit compliance or as otherwise authorized by the Utah Solid and Hazardous Waste Act any substances or parameters at any location; and
- I.O.1.e Make record of inspections by photographic, electronic, videotape, or any other reasonable medium.

**I.P MONITORING AND RECORDS**

- I.P.1 USS shall retain records of all CHWI monitoring information at Geneva Steel, including all calibration and maintenance records and, where applicable, all original strip chart recordings (or equivalent recordings) for continuous monitoring instrumentation, copies of all reports and records required by this Permit, and records of all data used to complete the application for this Permit for a period of at least three years from the date of the sample, measurement, report, or application unless a longer retention period for certain information is required by other conditions of this Permit. This period may be extended by request of the Executive Secretary at any time prior to expiration of document retention period by written notification to the Permittees. Geneva Steel will provide for storage and access to all records that the Permittees are responsible for maintaining on the Geneva Steel facility.
- I.P.2 Pursuant to R315-3-3.1(j), records of monitoring information shall include:



- I.P.2.a The date, exact place, and times of sampling or measurements;
- I.P.2.b The individual(s) who performed the sampling or measurements;
- I.P.2.c The date(s) analyses were performed;
- I.P.2.d The individual(s) who performed the analyses;
- I.P.2.e The analytical techniques or methods used; and
- I.P.2.f The results of such analyses.
- I.P.3 Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. Laboratory methods shall be the appropriate method from R315-50-6, or, alternatively, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846* (current edition) (hereinafter "SW-846") or *Standard Methods of Examination of Water and Wastewater* (current edition). Other methods will be allowed if approved by the Executive Secretary.
- I.P.4 When requesting substitute or additional analytical methods, the Responsible Permittees shall submit to the Executive Secretary a request for substitution of analytical methods which are equivalent to the methods specifically approved for use in this Permit, in accordance with R315-3-4.3. The request shall provide information demonstrating that the proposed methods requested to be substituted are equivalent or superior in terms of sensitivity, accuracy, and precision (i.e., reproducibility).
- I.Q REPORTING PLANNED CHANGES**
- I.Q.1 USS shall give written notice to the Executive Secretary of any planned physical alterations or additions to the HWI in accordance with R315-3-3 and R315-3-4.3.
- I.R REPORTING ANTICIPATED NONCOMPLIANCE**
- I.R.1 USS shall give advance notice to the Executive Secretary of any planned changes or activity at the HWI which may result in noncompliance with requirements of this Permit. Advance notice shall not constitute a defense for any noncompliance.
- I.S TRANSFER OF PERMIT**
- I.S.1 This Permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to R315-3-4. Prior to transferring ownership of the Facility Geneva Steel shall notify the new owner or operator in writing of all applicable requirements of R315 and this Permit.

**I.T TWENTY-FOUR HOUR REPORTING**

- I.T.1** Responsible Permittee shall report to the Executive Secretary any noncompliance with this Permit. Geneva Steel shall immediately advise Responsible Permittee orally in the event that Geneva Steel is the first to detect such noncompliance. Responsible Permittee shall report such noncompliance orally within 24 hours from the time Responsible Permittee becomes aware of the circumstances. This report shall include, but not be limited to, the following:
- I.T.1.a** Name, address, and telephone number of the reporting Permittee;
  - I.T.1.b** Name, address, and telephone number of the Geneva Steel facility;
  - I.T.1.c** Name and telephone number of the reporting individual;
  - I.T.1.d** Date, time and type of incident;
  - I.T.1.e** Name and quantity of material(s) involved;
  - I.T.1.f** The extent of injuries, if any;
  - I.T.1.g** An assessment of actual or potential hazard to the environment and human health; and
  - I.T.1.h** Estimated quantity and disposition of recovered material that resulted from the incident.
- I.T.2** A written submission shall also be provided within five working days of the time the Responsible Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance. The Executive Secretary may waive the five-day written notice requirement in favor of a written report within 15 calendar days of the time Responsible Permittee becomes aware of the circumstances.

**I.U OTHER NONCOMPLIANCE**

- I.U.1** The Responsible Permittee(s) shall report all other instances of noncompliance with this Permit not otherwise required to be reported in accordance with the conditions of this Permit at the time Progress Reports as required in Condition V.H are submitted. The report shall contain the information listed in Condition I.T of this Permit.

**I.V OTHER INFORMATION**

- I.V.1 If a Permittee becomes aware that any relevant material facts in the Permit application were omitted or that incorrect information in the Permit application or in any report was submitted to the Executive Secretary, such Permittee shall submit such facts or corrected information within thirty calendar days from the time the omission or incorrect submittal is discovered.

**I.W SIGNATORY REQUIREMENT**

- I.W.1 All applications, reports, or other information required by this Permit to be submitted to the Executive Secretary shall be signed and certified by the Responsible Permittee(s) in accordance with R315-3-2.2 and R315-3-3.1(k).

**I.X REPORTS, NOTIFICATIONS, AND SUBMISSIONS**

- I.X.1 All reports, notifications, or other submissions which are required by this Permit to be transmitted to the Executive Secretary shall be sent by certified mail or other means providing proof of delivery to:

Executive Secretary  
Utah Solid and Hazardous Waste Control Board  
288 North 1460 West  
Post Office Box 144880  
Salt Lake City, Utah 84114-4880  
Phone: (801) 538-6170  
Facsimile: (801) 538-6715

Required oral notifications shall be given to the Executive Secretary or his representatives (Environmental Manager, Environmental Scientist, or Environmental Engineer) during normal business hours (8 am to 5 pm, Monday through Friday, except state or federal holidays). Notifications made at other times shall be made to the twenty-four hour answering service at 801-536-4123. Notifications made to the twenty-four hour answering service shall include all applicable information required by this Permit. The reporting party shall give oral notification to the Executive Secretary or his representatives on the first business day following notification to the twenty-four hour answering service.

**I.Y DOCUMENTS TO BE MAINTAINED ONSITE**

- I.Y.1 USS shall maintain, for the duration of the post-closure care period at the Geneva Steel Site, the following documents, amendments, revisions, and modifications to these documents pertaining to the HWI:
- I.Y.1.a The post-closure Permit and Permit application;

- I.Y.1.b The cost estimate for post-closure care, to be provided by USS as required by R315-8-8 and this Permit;
- I.Y.1.c Post-closure monitoring records, to include groundwater monitoring records, groundwater potentiometric maps, and analytical results, as required by this Permit;
- I.Y.1.d The closure certification, as required by R315-8-7 and this Permit;
- I.Y.1.e Personnel training documents and records, as required by R315-8-2.7(d) and this Permit, for current personnel, or for a period of three years for former personnel in accordance with R315-8-2.7(e);
- I.Y.1.f A Contingency Plan as required by R315-8-4.2(a) and this Permit until completion of post closure care is certified;
- I.Y.1.g Inspection logs, as required by R315-8-2.6(b) and this Permit for a period of three years in accordance with R315-8.2.6(d).

**I.Z PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT**

- I.Z.1 Pursuant to Section 3005(c)(3) of RCRA (Section 212 of HSWA) codified as 40 CFR 270.32(b) and R315-3-3.3(b)(2) , this Permit contains those terms and conditions determined necessary to protect human health and the environment.



## **MODULE II - GENERAL FACILITY STANDARDS AND POST-CLOSURE CARE**

### **II.A POST-CLOSURE CARE OF HWI**

- II.A.1 USS shall maintain and monitor the HWI throughout the Post-Closure Care Period in accordance with this Permit and with the provisions of R315-8-7 as in effect on May 14, 2004.
- II.A.2 Monitoring by USS shall ensure detection of a release of hazardous waste, hazardous waste constituents, leachate, contaminated runoff or hazardous waste decomposition products to the soil, groundwater, or surface water from the CHWI. USS shall maintain all containment and monitoring equipment throughout the Post-Closure Care Period in accordance with this Permit.
- II.A.3 USS shall maintain the groundwater interception trench in accordance with the procedures contained in Attachment 2 of this Permit.
- II.A.4 The CHWI were certified as closed on July 29, 1991. The Post-Closure Care Period began on July 29, 1991 and shall continue for a minimum of 30 years after that date.
- II.A.5 Certification of Completion of Post-Closure Care. USS shall certify that the post-closure care was performed in accordance with the specifications in the Post-Closure Plan, as required by R315-8-7.

### **II.B POST-CLOSURE MAINTENANCE**

- II.B.1 USS shall:
  - II.B.1.a Maintain the integrity and effectiveness of the final cover in accordance with this Permit, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events.
  - II.B.1.b Prevent run-on and run-off from eroding or otherwise damaging the final cover in accordance with R315-8-11.5(b)(4).
  - II.B.1.c Inform Geneva and the Executive Secretary upon discovery of any post-closure use of the property which will disturb the integrity of the final cover, containment systems, or monitoring system in accordance with Attachment 2 and R315-8-11.5(b)(1).
  - II.B.1.d Protect and maintain survey benchmarks used in complying with R315-8-14.4.

## **II.C SECURITY**

- II.C.1 USS shall comply with the following security conditions:
  - II.C.1.a USS shall provide a fence with locking gates surrounding the CHWI, to prevent unauthorized entry and shall maintain such fence throughout the post-closure care period.
  - II.C.1.b USS shall post signs which read "DANGER, UNAUTHORIZED PERSONNEL KEEP OUT" at the entrance gate and every 300 feet along the fence and shall maintain such signs throughout the post-closure care period. The signs must be legible from a distance of at least 25 feet in compliance with R315-8-2.5(c). All security equipment shall be inspected throughout the post-closure care period in accordance with Attachment 2.
  - II.C.1.c USS shall note all damaged security equipment in the inspection checklist and shall complete repairs as soon as practicable.

## **II.D GENERAL INSPECTION REQUIREMENTS**

- II.D.1 USS shall follow the inspection schedule found in Attachment 2.
- II.D.2 USS shall remedy any deterioration or malfunction in accordance with Attachment 2 and R315-8-2.6(c).
- II.D.3 USS shall keep records of inspections as required by Attachment 2.
- II.D.4 USS may make revisions to the Inspection Procedures in Attachment 2 of this permit in accordance with the procedures for permit modifications of R315-3-4.3.

## **II.E PERSONNEL TRAINING**

- II.E.1 USS shall conduct personnel training as required by R315-8-2.7. New personnel working at the HWI shall complete the required personnel training on or within six months after their hire date or assignment to the HWI. In addition, USS shall comply with the following conditions:
  - II.E.1.a HWI personnel shall receive an annual review of their initial training in both contingency procedures and the hazardous waste management procedures relevant to the work at the HWI.
  - II.E.1.b USS shall maintain training documents and records as required by R315-8-2.7(d) and R315-8-2.7(e).

- II.E.1.c USS shall maintain a copy of the training plan at Geneva Steel until completion of the post-closure care period.

## **II.F CONTINGENCY PLAN**

- II.F.1 When dictated by the Contingency Plan for the HWI, USS, or such other individuals or entities designated in the contingency plan, shall immediately carry out the emergency procedures described by R315-8-4.7. USS shall comply with R315-9 in reporting releases from the HWI to the Executive Secretary.
- II.F.2 USS shall maintain a copy of the Contingency Plan for the HWI at Geneva Steel.
- II.F.3 USS shall review and amend, if necessary, the Contingency Plan for the HWI in accordance with R315-8-4.5.

## **II.G RECORDKEEPING AND REPORTING**

- II.G.1 USS shall submit reports as required to the Executive Secretary documenting post-closure groundwater monitoring activities and results from analyses of samples collected in compliance with post-closure monitoring requirements. Copies of all appropriate records will be maintained at Geneva Steel.

## **II.H FINANCIAL ASSURANCE FOR FACILITY POST-CLOSURE CARE**

- II.H.1 USS shall maintain continuous compliance with the financial assurance requirements of R315-8-8.

## **II.I COST ESTIMATES FOR POST-CLOSURE CARE**

- II.I.1 USS shall maintain continuous compliance with cost estimate requirements of R315-8-8.

## **II.J LIABILITY REQUIREMENTS**

- II.J.1 USS shall maintain continuous compliance with R315-8-8, including documentation requirements, and liability coverage for sudden accidental occurrences in the amount of at least one million U.S. dollars per occurrence with an annual aggregate of at least two million U.S. dollars, exclusive of legal defense costs for the Post-Closure Care Period.
- II.J.2 USS shall maintain continuous coverage for non-sudden accidental occurrences in the amount of at least three million U.S. dollars per occurrence, with an annual aggregate of at least six million U.S. dollars, exclusive of legal defense costs, for the HWI.



**II.K INCAPACITY OF OWNER OR OPERATORS, GUARANTORS, OR  
FINANCIAL INSTITUTIONS**

II.K.1 USS shall comply with R315-8-8.

**II.L POST-CLOSURE GROUNDWATER MONITORING**

II.L.1 USS shall maintain and monitor the HWI. Within 60 calendar days of Permit issuance, USS shall submit maintenance procedures for the interceptor trench which shall be included in Attachment 2.

II.L.2 USS shall maintain a groundwater monitoring system as specified in Condition II.L.3 and in accordance with R315-8-6.8.

II.L.3 USS shall maintain and monitor the groundwater monitoring systems in compliance with Module III. Monitoring wells in the systems are those identified in Module III. During the Post-Closure Care period, water level measurements at the monitor wells shall be conducted in accordance with this Permit. USS shall maintain groundwater monitoring wells specified in Module III, at the locations specified on the facility maps in Attachment 3. USS may add or delete wells as specified in this Permit.

## **MODULE III – POST-CLOSURE GROUNDWATER MONITORING AT THE HWI**

### **III.A POST-CLOSURE GROUNDWATER MONITORING**

- III.A.1 During the compliance period defined in Condition IV.A.8, USS shall monitor groundwater in the uppermost aquifer as described below and in a manner that will detect the release of hazardous constituents from the units outlined below in compliance with R315-8-11.9 and R315-8-6.
- III.A.1.a Acid Sludge Impoundment;
- III.A.1.b Tar Decanter Sludge Impoundment; and
- III.A.1.c Miscellaneous Waste Impoundment.
- III.A.2 USS shall follow all of the provisions of R315-8-6, Groundwater Protection, and the conditions of this Permit. The present HWI and Compliance Point wells are presented in Attachment 3 (Facility Maps).
- III.A.3 The Point of Compliance is a vertical surface located at the hydraulically downgradient boundary of the CHWI as defined in R315-8-6.6.
- III.A.4 USS shall maintain the groundwater monitoring system to continue to demonstrate background groundwater conditions. Monitoring Well # MW-1 shall represent the upgradient background condition in the shallow, uppermost aquifer and # MW-19 shall serve as the deep upgradient background well. If any of the monitoring wells are found to be inadequate, USS shall, upon notification by the Executive Secretary, install acceptable new monitoring wells.
- III.A.5 USS shall maintain the downgradient compliance groundwater monitoring well system shown in Attachment 3 (Facility Maps) consisting of the following wells: MW-17D, MW-21, MW-22, MW-23, and MW-24.

### **III.B DETECTION MONITORING**

- III.B.1 Upon termination of any corrective action under R315-8-6.11 at the HWI, USS shall institute and maintain a detection monitoring program under R315-8-6.9.

### **III.C GROUNDWATER PROTECTION STANDARD**

- III.C.1 USS shall monitor the groundwater according to the frequency outlined in Attachment 6, Table 1, at the HWI to determine compliance with the groundwater protection standard under R315-8-6.3. The following hazardous waste constituents and their concentration limits, and in addition to standards under R315-8-6.3 shall

comprise the groundwater protection standards, unless USS has applied for and the Executive Secretary has approved Alternative Concentration Limits.

III.C.2 The following Groundwater Protection Standards only apply to the monitoring wells identified in III.A.5.

<b>Compound</b>	<b>Method</b>	<b>Concentration Limit (µg/l)</b>
<b>VOLATILES</b>		
Benzene	8260B	5
Toluene	8260B	5
Ethylbenzene	8260B	5
Xylenes	8260B	5
<b>SEMI-VOLATILES</b>		
2,4-dimethylphenol	8270C	10
2-picoline	8270C	10
Acenaphthylene	8270C	10
Naphthalene	8270C	10
o-cresol (2-methylphenol)	8270C	10
p-cresol (4-methylphenol)	8270C	10
Phenol	8270C	10
Pyridine	8270C	10
<b>METALS</b>		
Arsenic	6010B	50
Barium	6010B	1000
Chromium	6010B	50
Lead	6010B	50
Nickel	6010B	50
<b>GENERAL PARAMETERS</b>		
Cyanide	335.2	40
Nitrate	353.4	NR
Sulfate	375.2	NR
PH	150.1	NR
Specific conductance	120.1	NR
Total Organic Carbon (TOC)	415.1	NR
Total Organic Halogen (TOX)	9020	NR

NR = None required

### **III.D GROUNDWATER MONITORING REQUIREMENTS**

- III.D.1** USS shall comply with the following general requirements for groundwater monitoring at the HWI:
- III.D.1.a** The groundwater monitoring system shall consist of a sufficient number of wells installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that:
- III.D.1.a.i** Represent the quality of background water that has not been affected by leakage from the Impoundments; and
- III.D.1.a.ii** Represent the quality of groundwater passing the compliance point as defined in Condition III.A.3.
- III.D.1.b** USS shall construct all monitoring wells in accordance with the provisions in R315-8-6.8(c) and Condition III.D.2.
- III.D.1.c** USS shall follow the sampling and analysis procedures defined in Attachment 4 and R315-8-6.8(d) and (e) for the groundwater monitoring program.
- III.D.1.d** USS shall follow the requirements for measurement of the groundwater surface elevation in R315-8-6.8(f).
- III.D.1.e** USS shall survey once in every three years the top surface apron elevation and top of casing elevation of all existing groundwater monitoring wells.
- III.D.1.f** USS shall notify the Executive Secretary at least ten calendar days prior to any sampling event required under this Permit
- III.D.2** USS shall install and maintain a groundwater monitoring system in consideration of the results of the statistical analysis performed as specified below:
- III.D.2.a** Well construction shall follow the techniques described in the *Technical Enforcement Guidance Document (TEGD)*, *OSWER-9950.1*, (current edition). All monitoring wells shall be cased in a manner that maintains the integrity of the monitoring well bore hole. This casing shall be screened or perforated and packed with gravel or sand where necessary, to enable collection of groundwater samples. The annular space, the space between the bore hole and well casing above the sampling depth must be sealed to prevent contamination of samples and the groundwater.

- III.D.2.b USS shall construct and maintain new monitoring wells in accordance with plans and specifications approved by the Executive Secretary.
- III.D.2.c USS shall install additional groundwater monitoring wells to maintain compliance if subsurface conditions significantly change or as required by the Executive Secretary. Such changes may include, but are not limited to, water level elevation or apparent flow direction changes, or detection of organic constituents in a well. If at any time hazardous waste constituents exceeding the groundwater protection standard concentration limits, as defined in Condition III.C. are detected in the furthest most hydraulically downgradient monitoring well(s), USS shall install additional groundwater monitoring wells further downgradient so that there is always at least one well beyond, but in the path of, the plume.
- III.D.2.d If new information or unforeseen circumstances reveal a need for additional monitoring to protect human health and the environment, USS may be required to install and sample additional wells at any time during post-closure or compliance periods.
- III.D.2.e USS shall submit monitoring well completion reports which include boring logs, sieve analysis (grain size), standard penetration tests, analytical tests performed on soils (Atterberg limits, etc.), water level elevations, groundwater contour maps, well development results including recharge rates, and cross sections or fence diagrams within 90 calendar days after completion of any new well installation.
- III.D.2.f USS shall maintain monitoring wells in a fully operational condition for the duration of this Permit. USS shall notify the Executive Secretary within fifteen (15) working days when a well is no longer properly functioning (including a marked change in pumping rate, presence of sandy or silty materials, and cracked or broken casings) or when USS intends to close one or more wells associated with the HWI. The Executive Secretary shall approve the conditions for replacement or correction of improperly operating wells.
- III.D.2.g USS shall determine on an annual basis the depth to the bottom of all groundwater monitoring wells. This information shall be recorded on well purging volume calculation sheets as required. If a problem is observed, USS shall follow the procedures described above in Condition III.D.2.f regarding notification and corrective procedures.
- III.D.2.h All wells deleted from the monitoring program shall be plugged and abandoned in such a manner as to prevent vertical movement of water within the borehole and to prevent the annular space surrounding the well casing from becoming a conduit for possible contamination of the groundwater supply. Well abandonment shall be accomplished in accordance with R655-4-12 and 13 of the Utah Administrative Code.
- III.D.3 Sampling and Analysis Procedures.

- III.D.3.a USS shall include and maintain consistent sampling and analysis procedures in the groundwater monitoring program that are designed to ensure reliable monitoring results of groundwater quality below the Impoundments. As required by Attachment 4 and R315-8-6.8(d), the program shall include procedures and techniques for:
- III.D.3.a.i Sample collection;
  - III.D.3.a.ii Sample preservation and shipment;
  - III.D.3.a.iii Analytical procedures;
  - III.D.3.a.iv Chain-of-custody control; and
  - III.D.3.a.v Quality assurance and control.
- III.D.3.b The sampling and analytical methods shall be appropriate for groundwater sampling and shall accurately measure hazardous waste constituents in groundwater samples, as required by R315-8-6.8(e).
- III.D.3.c USS shall use the following techniques and procedures when obtaining samples and analyzing samples from the groundwater monitoring wells:
- III.D.3.c.i USS shall collect groundwater samples by the technique described in Attachment 4 and as required by R315-8-6.8(e).
  - III.D.3.c.ii USS shall preserve and transport groundwater samples in accordance with the procedures specified in Attachment 4 and as required by R315-8-6.8(d).
  - III.D.3.c.iii Samples shall be analyzed according to SW-846, using methods delineated in Condition III.C. or an equivalent EPA-approved method that has been pre-approved as per Condition I.P.3, and the procedures specified in Attachment 4. In addition, USS shall comply with the following requirements:
    - III.D.3.c.iii.A The use of quality control sample data shall be explained in full detail, except that USS shall provide at least one field blank, one equipment blank, one set of replicates representing 10% of the total number of samples, and one trip blank for analysis at each sampling event performed under the groundwater monitoring program. Any field, trip, or equipment blanks exceeding a value equal to three (3) times the method detection limit for any organic parameter may result in rejection of the data for that parameter. This may require resampling of all wells sampled during that particular sampling event that are associated with the affected blank, for the specified compounds. Qualifiers shall be indicated on all organic laboratory reports when blanks indicate contamination above the method detection level.

III.D.3.c.iii.B The Executive Secretary may request at any time all laboratory QA/QC documentation and supporting data on any sampling episode. The laboratory QA/QC documentation shall be retained at Geneva Steel throughout the Post-Closure Care Period.

III.D.3.c.iii.C Samples shall be tracked and controlled using the chain-of-custody procedures specified in Attachment 4 and as required by R315-8-6.8(d).

III.D.3.c.iii.D In the case of sample breakage (e.g. during shipping), resampling shall take place within fifteen (15) working days of USS being notified of such breakage. Notification in accordance with Condition III.D.1.f is not required for this type of resampling event.

#### III.D.4 Groundwater Elevation.

III.D.4.a USS shall determine the groundwater surface elevation in all groundwater wells and piezometers each time the groundwater is sampled as required by R315-8-6.8(f).

III.D.4.b USS shall determine the groundwater flow rate and direction in the uppermost aquifer based on groundwater surface elevation measurements and on re-surveyed well apron elevations. An updated groundwater contour map shall be submitted to the Executive Secretary not later than September 30th of each year in which the groundwater wells are resurveyed.

### III.E MONITORING PROGRAM

III.E.1 USS shall determine groundwater quality at the HWI as follows:

III.E.1.a USS shall collect, preserve, and analyze groundwater samples pursuant to Condition III.D.

III.E.1.b USS shall determine the flow rate and direction in the uppermost aquifer pursuant to Condition III.D.4.

III.E.1.c USS shall analyze samples from all groundwater monitoring wells at the HWI in accordance with Table I of Attachment 6, which lists the parameters, analytical methods, and monitoring frequency applicable to each well. The data gathered and generated during each sampling event shall be submitted to the Executive Secretary in accordance with Condition III.F.

### III.F REPORTING AND RECORDKEEPING

III.F.1 USS shall enter all monitoring, testing and analytical data obtained pursuant to Condition III.D.3 in the HWI operating record.

III.F.2 USS shall submit to the Executive Secretary the analytical results required by Condition III.E.1.c, and in accordance with the following schedule:

	<b>Sampling Events</b>	<b>Results Due To The Executive Secretary</b>
—		
	December - May	July 15
—		
	June - November	January 15





## **MODULE IV - GROUNDWATER PROTECTION STANDARDS AT THE HWI**

### **IV.A EXCEEDANCE OF HWI GROUNDWATER PROTECTION STANDARDS**

- IV.A.1 USS shall notify the Executive Secretary in writing within fifteen days of receipt of verified analytical data if the groundwater protection standard in Condition III.C.2. has been exceeded in any of the following monitoring wells: MW-17D, MW-21, MW-22, MW-23, and MW24. The notification shall indicate which concentration limits have been exceeded. This notification is not required for the indicator parameters of pH, TOC, TOX, nitrates, sulphates, and specific conductance listed in Condition III.C.
- IV.A.2 Within 180 calendar days after issuance of this Permit, USS shall submit a Statistical Analysis Methodology to be utilized for evaluation of groundwater data generated in accordance with Module III. Upon approval by the Executive Secretary, the statistical methodology that will be included as Attachment 5 (Statistical Analysis Methodology). The Groundwater Protection Standard shall be considered exceeded when any hazardous constituent listed in Condition III.C. shows a statistically significant increase over its background value.
- IV.A.3 USS may make a demonstration that the groundwater protection standard was exceeded due to sources other than the CHWI or to errors in sampling, analysis or evaluation.
- IV.A.4 USS shall notify the Executive Secretary in writing, if demonstration will be made.
- IV.A.5 USS shall submit a report to the Executive Secretary, within 90 days of the notice in Condition IV.A.4, demonstrating that a source other than the HWI caused the groundwater protection standard to be exceeded as provided by Condition IV.A.1.
- IV.A.6 USS shall continue the compliance monitoring program in accordance with R315-8-6.10.
- IV.A.7 The Groundwater Protection Standard shall not be considered to be exceeded if USS makes a demonstration in accordance with Condition IV.A.3 and the demonstration is accepted by the Executive Secretary.
- IV.A.8 Except as provided in Module IV, the compliance period during which the groundwater protection standard applies will be the 30 years following certification of closure of the CHWI (July 29, 1991). If USS is conducting corrective action at the HWI at the end of the compliance period specified, or has not demonstrated for three consecutive years that the groundwater protection standard has not been exceeded, except as provided in Module IV, then the compliance period shall be extended until USS demonstrates in accordance with Module IV that the groundwater protection standard has not been exceeded for three consecutive years at the HWI compliance point wells as defined in

Condition III.A.3 which shall include downgradient compliance monitoring wells MW-5, MW-8, MW-9, MW-10, MW13, and MW-14D.

**MODULE V - CORRECTIVE ACTION FOR**  
**SOLID WASTE MANAGEMENT UNITS**  
**AND SCHEDULE OF COMPLIANCE**

**V.A      RCRA FACILITY ASSESSMENT**

- V.A.1      The RCRA Facility Assessment (RFA) has been completed for this facility. The final RFA report was completed on March 3, 1989. The revised Solid Waste Management Units (SWMUs) list with Identification Number, Description of Units and allocation of responsibility is contained in Attachment 1.

**V.B      RCRA FACILITY INVESTIGATION**

- V.B.1      RCRA Facility Investigations (RFI) have been conducted in accordance with approved work plans to determine the nature and extent of known and suspected releases of hazardous wastes or hazardous waste constituents from each SWMU at the facility. Reports submitted to date include the following:
- V.B.1.a      Task I, Description of Current Activities (approved March 5, 1992)
- V.B.1.b      Task II, RFI Work Plan (approved March 31, 1992)
- V.B.1.c      Task III, RFI Reports, including:
- V.B.1.c.i      Part 1, Investigation of Environmental Setting (approved April 23, 1993).
- V.B.1.c.ii      Part 2, Characterization of Potential Sources of Contamination and Prioritization of SWMUs (approved July 13, 1993).
- V.B.1.c.iii      Part 3, Identification and Description of Potential Receptors (approved February 25, 1993)
- V.B.1.c.iv      Part 4, Characterization of Existing Contamination - Screening Investigation Report (SI Report) approved March 13, 1996.
- V.B.1.c.v      Part 4, Verification Investigation Work Plan approved October 13, 2000 (VIWP).
- V.B.2      The RFI has identified SWMUs that require additional investigation in accordance with the VIWP.
- V.B.3      Three general SWMU categories have been identified as a result of the SI Report of the

RFI. These SWMUs will be investigated in accordance with the VIWP.

- V.B.3.a **Category A SWMUs.** These are SWMUs that appear to be candidates for No Further Action (NFA).
- V.B.3.b **Category B SWMUs.** These are SWMUs that appear to require minimal remediation to qualify as candidates for NFA.
- V.B.3.c **Category C SWMUs.** These are SWMUs that require additional data to characterize and appropriately categorize each SWMU or that require additional investigation to support a site specific risk evaluation or engineered remediation.

**V.C INTERIM MEASURES**

- V.C.1 If, during the course of any activity initiated in compliance with the conditions of this Permit the responsible Permittee(s) as defined in Attachment 1, the Permittee or the Executive Secretary determines that a release or potential release of hazardous waste or hazardous waste constituents from a SWMU poses a threat to human health and the environment, the responsible Permittee(s) may request or the Executive Secretary may specify interim measures.
- V.C.2 The Executive Secretary shall notify the responsible Permittee(s) in writing of the requirement to perform the interim measures.
- V.C.3 Within 30 calendar days of receiving the written notification requiring the Interim Measures as specified in Permit Condition V.C.2., the responsible Permittee(s) shall submit an Interim Measures Plan for approval.
- V.C.4 The Interim Measures Plan shall specify action(s) that shall be taken to implement the interim measure, including potential permit modifications and the schedule for implementing the required measures. The Interim Measures Plan shall include the following:
- V.C.4.a Time required to develop and implement a final remedy;
- V.C.4.b Actual and potential exposure of human and environmental receptors;
- V.C.4.c Actual and potential contamination of drinking water supplies and sensitive ecosystems;
- V.C.4.d The potential for further degradation of the medium absent interim measures;

- V.C.4.e Presence of hazardous waste in containers that may pose a threat of release;
- V.C.4.f Presence and concentration of hazardous waste including hazardous waste constituents in soils that have the potential to migrate to groundwater or surface water;
- V.C.4.g Weather conditions that may affect the current levels of contamination;
- V.C.4.h Risks of fire, explosion, or accident; and
- V.C.4.i Other situations that may pose threats to human health and the environment.
- V.C.5 The Interim Measures Plan shall be incorporated into this Permit in accordance with Condition I.N.5.
- V.D NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF PREVIOUSLY UNIDENTIFIED SOLID WASTE MANAGEMENT UNITS**
- V.D.1 When the Permittee discovers any SWMU not previously identified in the Permit, the Permittee shall notify the Executive Secretary within 30 calendar days of discovering the SWMU(s). The notification shall include the location of the new SWMU(s) and information on the suspected or known wastes at the site, and identify the responsible Permittee for the new SWMU in Attachment 1.
- V.D.2 Within 90 calendar days following discovery of the SWMU(s), the Responsible Permittee shall submit a SWMU Assessment Plan to the Executive Secretary.
- V.D.3 The SWMU Assessment Plan shall include the following:
  - V.D.3.a The identification number for the new SWMU(s) and information concerning past and present operations at the SWMU(s); and
  - V.D.3.b Any groundwater, surface water, soil (surface or subsurface strata), or air sampling and analysis data needed to determine whether a release of hazardous waste or hazardous waste constituents from the SWMU(s) is likely to occur. The SWMU Assessment Plan shall demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly discovered SWMUs to the environment.

- V.D.4 The Executive Secretary shall approve the SWMU Assessment Plan or shall notify the Responsible Permittee of the SWMU Assessment Plan's deficiencies and specify a due date for submittal of a revised Plan.
- V.D.5 The SWMU Assessment Plan shall be incorporated into this Permit in accordance with Condition I.N.5.
- V.D.6 The Responsible Permittee shall implement the approved SWMU Assessment Plan within 30 days of approval.
- V.D.7 The SWMU Assessment Plan shall contain a schedule, including the submission date for a SWMU Assessment Report.
- V.D.8 The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan. At a minimum, the Report shall provide the following information for each previously unidentified SWMU:
  - V.D.8.a The SWMU location, identified on a map;
  - V.D.8.b The type and function of the SWMU, including general dimensions and a structural description;
  - V.D.8.c The period during which the SWMU was operated; and
  - V.D.8.d All wastes that were or are being managed at the SWMU including results of any sampling and analysis used to determine whether releases of hazardous wastes or hazardous waste constituents have occurred, are occurring, or are likely to occur from the SWMU.
- V.D.9 Based on the results of SWMU Assessment Report, the Executive Secretary shall determine the need for further investigations at specific SWMUs included in the SWMU Assessment Report. If the Executive Secretary determines that such investigations are needed, the Executive Secretary may require the Responsible Permittee to prepare a plan for such investigations in accordance with the VIWP. The Executive Secretary shall review the plan and either approve it or notify the Responsible Permittee of its deficiencies.
- V.D.10 The Responsible Permittee shall notify the Executive Secretary of any release(s) of hazardous waste or hazardous waste constituents discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other activities undertaken during the RFI. The written notification shall be received by the

Executive Secretary no later than 15 working days after discovery. Such releases may be from already documented or previously unidentified SWMUs. The Executive Secretary may require a plan for further investigation of the new release(s). The Executive Secretary shall review the plan and either approve it or notify the Responsible Permittee of its deficiencies.

**V.E      DETERMINATION OF NO FURTHER ACTION**

- V.E.1      If, upon investigation of any SWMU, the Responsible Permittee determines that corrective action would not be necessary, in accordance with the VIWP, the Responsible Permittee may petition the Executive Secretary in writing for a determination that no further action is necessary. The Executive Secretary shall either approve or disapprove the petition in writing.
- V.E.2      A determination of no further action shall not preclude the Executive Secretary from requiring further investigations, or remediation at a later date, if new information or subsequent analysis indicates that a release or likelihood of a release from a SWMU at the facility is likely to pose a threat to human health or the environment. In such a case, the Executive Secretary shall initiate major permit modification in accordance with R315-3-4.3 or rescind the determination made in accordance with Condition V.E.1.

**V.F      CORRECTIVE ACTION PLAN**

- V.F.1      The VIWP, provides the bases for implementation of corrective action at SWMUs. As described in the VIWP such corrective action may include investigation, remediation, or both.
- V.F.2      Investigation and remediation plans, including sampling plans required by the VIWP shall be submitted to the Executive Secretary for approval prior to implementation with schedules for implementation.
- V.F.3      Within 60 days of completion of investigations or remediation required by Condition V.F.2, the Responsible Permittee shall submit, for approval, reports which summarize final sampling activities, investigative results, risk evaluation results, further corrective action to be implemented, and a schedule for further corrective action implementation.

**V.G      CORRECTIVE ACTION IMPLEMENTATION**



- V.G.1 The responsible Permittee(s) shall implement Corrective Action Plans (CAP) in accordance with the schedule approved in each VIWP Report as described in Conditions V.F.2 and V.F.3. Work will commence in accordance with the schedule for corrective action implementation described in Conditions V.F.2. and V.F.3.
- V.G.2 On November 13, 2000, USS and Geneva Steel submitted applications for three Corrective Action Management Units (hereinafter "CAMUs"). By letter dated November 17, 2000, the Executive Secretary accepted that application as substantially complete. Use of these CAMUs is integral to performance of work required by this Permit. Consequently, USS and Geneva Steel shall submit to the Executive Secretary CAMU designs and CAMU operation and maintenance plans. Upon approval by the Executive Secretary, the designs and plans will be incorporated in this Permit. The CAMUs shall be constructed, operated, and maintained in accordance with the approved design and plans.
- V.G.3 Perimeter groundwater monitoring, additional groundwater investigations, and the Tier 2 Ecological Risk Assessment described in the VIWP will be performed in accordance with Table 1 of Module V.

## **V.H REPORTING REQUIREMENTS**

- V.H.1 USS and Geneva Steel shall submit to the Executive Secretary signed semi-annual progress reports of all activities for which each is responsible, either individually or collectively, (e.g., Interim Measures, RFI, Corrective Action) conducted pursuant to the Permit conditions of Module V.
- V.H.2 The progress reports shall contain the following:
- V.H.2.a A description of the work completed;
  - V.H.2.b Summaries of all findings and all raw data;
  - V.H.2.c Summaries of all problems or potential problems encountered during the reporting period and actions taken or to be taken to rectify problems; and
  - V.H.2.d Projected work for the next reporting period including a list of SWMUs for which Notification Letters will be submitted.
- V.H.3 The responsible Permittee(s) shall maintain copies of all required reports, drilling logs, etc. at Geneva Steel, during the effective period of this Permit.

V.H.4 The Executive Secretary may require the responsible Permittee(s) to conduct new or more extensive assessments, investigations, or studies, as needed, based on information provided in these progress reports or other supporting information.

**V.I FINANCIAL ASSURANCE FOR CORRECTIVE ACTION**

V.I.1 The Permittee shall be financially responsible for completing facility-wide corrective action.

1892-1893

1894-1895

1896-1897

1898-1899

1900-1901

1902-1903

Table 1 Module V

Corrective Action Compliance Schedule

<u>Activity</u>	<u>Due Date</u>
Permittee submits report on Semi-Annual (first year only) Perimeter Groundwater Monitoring event in accordance with approved VIWP	July 15, 200X and January 15, 200Y
Permittee submits report on Annual (second year and thereafter) Perimeter Groundwater Monitoring event in accordance with approved VIWP	90 days after sampling event
Permittee submits report on semi-annual Post-Closure Groundwater Monitoring event at the Impoundments	90 days after sampling event.
Permittee submits progress reports on Corrective Action and Impoundment activities	Semi-annually (every 180 calendar days), on the 15 <sup>th</sup> day of the month following the end of each semi-annual period
Permittee submits Annual SWMU corrective action forecast (list of SWMUs to be addressed) for upcoming year	Include forecast in Second Semi-Annual Progress Report every year
VIWP Investigation Reports.	60 Days of completion of investigations.
Permittee submits Statistical Analysis Methodology for Facility –wide Perimeter Groundwater monitoring well network data	180 days after issuance of Permit
Permittee submits plan for additional groundwater investigation and corrective action, including downgradient perimeter groundwater monitoring frequency and parameters, at Oil Reclamation Area	60 days after issuance of Permit

Permittee submits plan for additional groundwater investigation, including "sentry wells," for remainder of facility

120 days after issuance of Permit

Permittee submits Tier 2 Ecological Risk Assessment (ERA) methodology

90 days after issuance of Permit

Permittee shall implement the Tier 2 ERA

60 days after Executive Secretary approval of ERA methodology, weather permitting

# **ATTACHMENT 1**

## **SWMU List**



**Table 1. SWMU LIST- USS'S SOLE RESPONSIBILITY FOR 2004**

Tier 1 SWMUs		
<b>SWMUG NO.</b>	<b>SWMU</b>	<b>Name</b>
1.01	<b>Coke, Coke By-Products and Benzol Plant</b>	
	BP-6	Former Spent Caustic Sump
	BP-9	Former Sludge Buggy Loading Facility
	BP-14	Crude Still Residue/Tar Line Cleanout Area
	BP-15	Wash Oil Lines Cleanout Area
	BP-A2	Tank #19 Wash Oil Sump Area
	BP-A3	Acid Sludge Tanks
	CBP-D	Solvent Tank Area
	CBP-33	Former Flushing Liquor Flume Area
	CBP-34	Tar Tank Bottoms Disposal Area
	CBP-E	Former Ammonia Still Area
1.02	<b>Final Wastewater Collection/Oil Recovery</b>	
	OR-18A to OR-19B	Secondary Pond Wastewater Ditches and Discharge Pipes
1.04	<b>Coke and Coal By-Products</b>	
	BP-11	Sludge Buggy Dump Area 1
1.05	<b>Coke and Coke By-Products and Benzol Plant</b>	
	BP-12	Sludge Buggy Dump Area 2
2.02	<b>Rolling Mills</b>	
	RM-9A	Former Clarifier Waste Oil Pond
2.04	<b>Open-Hearth, Blast Furnace and BOP Shop</b>	
	OH-28	Former Ladle Burnout Baghouse Tote Box



**Table 1. SWMU LIST- USS'S SOLE RESPONSIBILITY FOR 2004**

Tier 1 SWMUs		
<b>SWMUG NO.</b>	<b>SWMU</b>	<b>Name</b>
2.05	<b>Rolling Mills</b>	
	RM-E	Former Caustic Wash Tank Area
2.08	<b>Blast Furnaces</b>	
	BF-F	Blast Furnace Ladle Burnout Station Area
2.10	<b>Blast Furnaces</b>	
	BF-33 to BF-34	Former Emergency Slag/Deskulling Pits
2.11	<b>Rolling Mills</b>	
	RM-14B	Areas Adjacent to 2 Inactive Scale Pits
2.14	<b>Wastewater Collection</b>	
	MS-3	Nitrogen Plant Ditch
2.19	<b>Coke, Coke By-Products and Benzol Plants; Sinter Plant</b>	
	BF-25	Slag Pile Tar Pond
	BF-38	Discrete Areas of Tar
3.02	<b>Coke Plant</b>	
	CP-2	Coal Mixing Baghouse Discharge Area
3.03	<b>Pipe Mill</b>	
	PM-6	Large Pipe Mill Waste Oil Tank
	PM-8	Trench Pipe from Pioneer Pipe

**Table 1. SWMU LIST- USS'S SOLE RESPONSIBILITY FOR 2004**

<b>Tier 1 SWMUs</b>		
<b>SWMUG NO.</b>	<b>SWMU</b>	<b>Name</b>
3.04	<b>Waste Oil and Grease and Solvent Storage</b>	
	MS-8	Former Satellite 1,1,1-TCA Collection Site
	MS-11	Central Spent 1,1,1-TCA Collection Site



Table 2. SWMU LIST- GENEVA'S SOLE RESPONSIBILITY FOR 2004		
Tier 1 SWMUs		
SWMUG NO.	SWMU	Name
1.01	Coke, Coke By-Products and Benzol Plant MS-25H	New Satellite Storage Area
3.04	Waste Oil and Grease and Solvent Storage MS-25C	New Satellite Storage Area
3.13	Skull Cracker Area MS-27	Waste Oil Storage Area
3.15	Waste Solvent Storage Areas MS-25D MS-25E MS-25F MS-25G MS-25I	New Satellite Storage Area New Satellite Storage Area New Satellite Storage Area New Satellite Storage Area New Satellite Storage Area
3.16	BOP Shop BOP-1	Q-BOP Baghouse Dust Bins and Area
3.18	New Pipelines from Heckett Pond 3.18A	Pipeline to BF Evaporation Pond
3.19	Coke By-Products Area 3.19A	Sulfur Piles
3.3R	Pipe Mill 3.3R	New Pipeline from Pioneer Pipe



**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	USS	Geneva	Years of Operation			Responsible Permittee
							Total Years of Operation	USS Cost Share	Geneva Cost Share	
1.01	Coke, Coke By-Products and Benzol Plant									
	CP-7	Quench Pond**	1944	1990	43	3	46	93.5%	6.5%	USS
	CP-8 to CP-11	North and South Quench Tower & Sump Areas	1944	2002	43	15	58	74.1%	25.9%	USS
	CP-12	Excess Flushing Liquor Surface Impoundment**	1982	1991	5	4	9	55.6%	44.4%	USS
	BP-2A & BP-2B	Benzol Still Area	1944	2002	43	15	58	74.1%	25.9%	USS
	BP-3	Wash Oil Cooler Area	1944	2002	43	15	58	74.1%	25.9%	USS
	BP-4, BP-7 & BP-8	Benzol Decanter Tank, Benzol Sump & Benzol Muck Tank Area	1944	2002	43	15	58	74.1%	25.9%	USS
	BP-10	Benzol Plant Underground Tanks**	1944	1991	43	4	47	91.5%	8.5%	USS
	BP-13	Interceptor Trench and Wastewater Lines & Overflow Areas	1944	2002	43	15	58	74.1%	25.9%	USS
	BP-A1	Crude Kettle Tank Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-1 to CBP-9 & CBP-C	Heat Exchanger Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-10	West Sump Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-11 to CBP-14	Tar Decanter Sump (CBP-11) Tar Decanters (CBP12-14) Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CPB-B	Circulating Liquor Tank Area**	1944	1991	43	4	47	91.5%	8.5%	USS
	CBP-15	AKJ Sludge Reclamation Area	1985	2002	2	15	17	11.8%	88.2%	GS
	CBP-16	North Excess Flushing Liquor Tanks Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-17	South Excess Flushing Liquor Tank Area- East Tank	1945	2002	42	15	57	73.7%	26.3%	USS
	CBP-18	South Excess Flushing Liquor Tank Area - West Tank**	1945	1970 to 1991	25	11	36	69.4%	30.6%	USS
	CBP-19	South Excess Flushing Liquor Sump Area**	1944	1990	43	3	46	93.5%	6.5%	USS
	CBP-20 to CBP-22 & CBP-25	ESP Seal Pots and Mother Liquor Sump Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-23 & CBP-24	Mother Liquor Tanks Area	1944	2002	43	15	58	74.1%	25.9%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	Years of Operation					Responsible Permittee
					USS	Geneva	Total Years of Operation	USS Cost Share	Geneva Cost Share	
	CBP-26	Acid Tar Bins Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-27 & CBP-31	Final Cooler and Wash Oil Sump Area**	1944	1991	43	4	47	91.5%	8.5%	USS
	CBP-28	East Sump Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-29 to CBP-30	Final Coolers Cooling Tower Area	1944	2002	43	15	58	74.1%	25.9%	USS
	CBP-G & CBP-H	Saturators Area	1944	2002	43	15	58	74.1%	25.9%	USS
1.02	<b>Final Wastewater Collection/Oil Recovery</b>									
	OR-3	East Oil Reclamation Ditch	1944		43	17	60	71.7%	28.3%	USS
	OR-4	Primary Oil/Water Separator Pond	1944		43	17	60	71.7%	28.3%	USS
	OR-5	Primary Oil/Water Separator Pond	1950		37	17	54	68.5%	31.5%	USS
	OR-6 & OR-7	Waste Oil Diversion Ditches	1968		19	17	36	52.8%	47.2%	USS
	OR-8A to OR-9B	Secondary Oil/Water Separator Ponds, and Waste Oil Reclaimer Units	1968		19	17	36	52.8%	47.2%	USS
	OR-10 & OR-11	Waste Oil Pipes	1968		19	17	36	52.8%	47.2%	USS
	OR-12A to OR-12C	Waste Oil Holding Ponds/Return Ditches**	1968	1994	19	7	26	73.1%	26.9%	USS
	OR-13 & OR-14	Underground Excess Wastewater Pipes	1950		37	17	54	68.5%	31.5%	USS
	OR-15A to OR-15B	Auxiliary Oil/Water Separator	1968	1994	19	7	26	73.1%	26.9%	USS
	OR-16A to OR-17B	Reclaimer Aerators & Wastewater Ditches	1950		37	17	54	68.5%	31.5%	USS
	OR-20	Weir 8 Wastewater Ditch	1944		43	17	60	71.7%	28.3%	USS
	OR-21 to OR-22	Oil Reclamation Sludge Piles	1950		37	17	54	68.5%	31.5%	USS
	OR-23	Truck Loading Sump	1968		19	17	36	52.8%	47.2%	USS
	OR-A to OR-B	Waste Oil Dehydrator Tank Area	1970		17	17	34	50.0%	50.0%	GS
	OR-C to OR-F	Reclaimed Oil Storage Tank Area**	1970	1994	17	7	24	70.8%	29.2%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004											
Tier 1 SWMUs											
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	USS	Geneva	Years of Operation		USS Cost Share	Geneva Cost Share	Responsible Permittee
							Total Years of Operation				
1.04	Coke and Coal By-Products										
	MS-19	PCB Collection Site	1978	2002	9	15	24	37.5%	62.5%	GS	
2.01	Blast Furnace and Open-Hearths										
	BF-24	Blast Furnace Slag Pile	1944	2002	43	15	58	74.1%	25.9%	USS	
	BF-31	Heckett Pond and Ditch	1944		43	17	60	71.7%	28.3%	USS	
	OH-4	Open Hearth Slag Pile (Now Q-BOP Slag Pile)	1944	2002	43	15	58	74.1%	25.9%	USS	
2.02	Rolling Mills										
	RM-7A to RM-7B	Rolling Mill Clarifier Area	1968	2002	19	15	34	55.9%	44.1%	USS	
	RM-8A	Clarifier Underground Oil Drainpipe	1968	2002	19	15	34	55.9%	44.1%	USS	
	RM-8B	Clarifier Oil Sump	1968	2002	19	15	34	55.9%	44.1%	USS	
	RM-8C	Clarifier Oil Skimmer**	1968	1994	19	7	26	73.1%	26.9%	USS	
	RM-8D	Overhead Oil Drainpipe**	1968	1994	19	7	26	73.1%	26.9%	USS	
	RM-9B	Current Clarifier Waste Oil Pond**	1968	1994	19	7	26	73.1%	26.9%	USS	
	MS-15	Sanitary Treatment Plant	1944		43	17	60	71.7%	28.3%	USS	
2.03	Blast Furnace and Sinter Plant										
	SP-11	Sinter Plant Clarifier Area**	1962	1993	25	6	31	80.6%	19.4%	USS	
	SP-16	Sinter Plant Pond	1962	2002	25	15	40	62.5%	37.5%	USS	
	BF-13 to BF-14	Blast Furnace Clarifier Area	1944	2002	43	15	58	74.1%	25.9%	USS	
2.04	Open-Hearth, Blast Furnace and BOP Shop										
	OH-1C	AKJ Tank "C" Catch Basin Area**	1985	1991	2	4	6	33.3%	66.7%	GS	
	OH-2	Iron Desulfurization Baghouse Tote Box**	1984	1993	3	6	9	33.3%	66.7%	GS	

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**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	Years of Operation					Responsible Permittee
					USS	Geneva	Total Years of Operation	USS Cost Share	Geneva Cost Share	
	OH-3A to OH-3C	Pig Machine Sumps and Drainage Ditch**	1944	1991	43	4	47	91.5%	8.5%	USS
	OH-22 to OH-23	Open Hearth Clarifiers Area	1955	2002	32	15	47	68.1%	31.9%	USS
	OH-24 to OH-25	Thickener Tank Area**	1955	1991	32	4	36	88.9%	11.1%	USS
	OH-29	Area Beneath Sludge Pipe**	1955	1992 - 1/3 per yr	32	12	41	78.0%	22.0%	USS
	OH-26	Sludge Pipe	1955	2002	32	15	47	68.1%	31.9%	USS
2.05	<b>Rolling Mills</b>									
	RM-15	LUST Area (Rolling Mills)**	1970	1991	17	4	21	81.0%	19.0%	USS
2.06	<b>Wastewater Collection Ditch</b>									
	MS-2	Lake Bottom Canal	1944		43	17	60	71.7%	28.3%	USS
	MS-16	Lake Bottom Canal Dredging Pile Area	1944		43	17	60	71.7%	28.3%	USS
2.07	<b>Blast Furnaces</b>									
	BF-18 to BF-20	Blast Furnace Sludge Surface Impoundments	1953	2002	34	15	49	69.4%	30.6%	USS
	BF-21	Blast Furnace Sludge Pile	1953	2002	34	15	49	69.4%	30.6%	USS
2.08	<b>Blast Furnaces</b>									
	BF-10 to BF-12	Blast Furnace Gas Washer Overflow Sump Area	1944	2002	43	15	58	74.1%	25.9%	USS
2.09	<b>Open Hearth LUST Area</b>									
	OH-30	Open Hearth LUST Area**	1964	1989	23	2	25	92.0%	8.0%	USS
2.11	<b>Rolling Mills</b>									

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	USS	Geneva	Years of Operation			Responsible Permittee
							Total Years of Operation	USS Cost Share	Geneva Cost Share	
	RM-14A	Areas Adjacent to 2 Active Scale	1944	2002	43	15	58	74.1%	25.9%	USS
2.12	<b>Plant Wastewater</b>									
	SI-5	Treated Water Cooling Pond and Pipeline	1943		44	17	61	72.1%	27.9%	USS
2.13	<b>Wastewater Collection (Except Pipe Mill)</b>									
	MS-1	Blast Furnace and Coke Plant Ditch	1944		43	17	60	71.7%	28.3%	USS
2.15	<b>Wastewater Collection</b>									
	MS-5	Wastewater Sewers divided into following SWMUs								
	MS-5A	All Sewers except Pipe Mill Sewers	1944		43	17	60	71.7%	28.3%	USS
	MS-5B	Pipe Mill Sewers	1956		31	17	48	64.6%	35.4%	USS
2.16	<b>Sinter Plant, Open Hearth Furnaces (Q-BOP)</b>									
	SP-13	Sinter Plant and Open Hearth Underground Slurry Pipeline	1962	2002	25	15	40	62.5%	37.5%	USS
2.17	<b>Sinter Plant</b>									
	SP-15	Sinter Plant Collection Sump Area**	1962	1996	25	9	34	73.5%	26.5%	USS
2.18	<b>Coke, Coke By-Products, Benzol Plant, Sinter Plant</b>									
	CP-13	Coke Oven Gas Drip Leg Areas**	1944	2002	43	4.45	47.45	90.6%	9.4%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	Years of Operation					Responsible Permittee
					USS	Geneva	Total Years of Operation	USS Cost Share	Geneva Cost Share	
2.19	<b>Coke, Coke By-Products and Benzol Plants; Sinter Plant</b>									
	SP-14A & SP-14B	Sinter Plant and Open Hearth Sludge Impoundments and	1962	2002	25	15	40	62.5%	37.5%	USS
	BF-32	Blast Furnace Slag Cooling Pits	1944	1987/2002	43	11	54	79.6%	20.4%	USS
	BF-26	Blast Furnace General Dump Area	1944	2002	43	15	58	74.1%	25.9%	USS
	BF-27 to BF-30	Blast Furnace Slag Cooling Pits and Spray System	1985	2002	2	15	17	11.8%	88.2%	GS
3.01	<b>Waste Oil and Grease Drum</b>									
	MS-24	Waste Oil/Grease Drum Storage Area(s)	1944	2002	43	15	58	74.1%	25.9%	USS
3.02	<b>Coke Plant</b>									
	CP-14	Hammermill Baghouse No. 3 Discharge Area	1977	2002	10	15	25	40.0%	60.0%	GS
3.03	<b>Pipe Mill</b>									
	PM-4	Pipe Mill Wastewater Sump Overflow Pipe	1956	2002	31	15	46	67.4%	32.6%	USS
	PM-5	Pipe Mill Waste Oil Tank	1956	2004	31	17	48	64.6%	35.4%	USS
	PM-7	Wastewater Pump Station and Emergency Overflow	1956	2002	31	15	46	67.4%	32.6%	USS
	MS-17	Miscellaneous Wastes Near Pipe Mill**	1956	2002				53.6%	46.6%	GS
3.04	<b>Waste Oil and Grease and Solvent</b>									
	MS-26	LUST Area (Central Garage)**	1954	1989	33	2	35	94.3%	5.7%	USS
	OR-1B	Waste Oil Tank (M-2 Garage)	1950	2002	37	15	52	71.2%	28.8%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	USS	Geneva	Years of Operation			Responsible Permittee
							Total Years of Operation	USS Cost Share	Geneva Cost Share	
	MS-10	Former Satellite 1,1,1-TCA Collection Site**	1980	1990	7	3	10	70.0%	30.0%	
	OR-24	Waste Oil Tank and Truck Loading Area	1950	2002	37	15	52	71.2%	28.8%	USS
	MS-I	Caustic Cleaning Tank ( Near Central Maintenance)	1950	2002	37	15	52	71.2%	28.8%	USS
	MS-20	Waste Oil Collection Tank (Central Maintenance)	1950	2002	37	15	52	71.2%	28.8%	USS
3.05	<b>Ash Storage</b>									
	MS-14	Powerhouse Baghouse Truck Loading Area	1978	2002	9	15	24	37.5%	62.5%	GS
	MS-22	Powerhouse Ash Pit and Ash Pile	1944	2002	43	15	58	74.1%	25.9%	USS
3.06	<b>Waste Solvent Storage</b>									
	MS-7	Satellite Spent 1,1,1-TCA Collection Site	1980	2002	7	15	22	31.8%	68.2%	GS
3.07	<b>Blast Furnace</b>									
	BF-22	Blast Furnace Evaporation Pond**	1983	2002	4	15	19	21.1%	78.9%	GS
3.08	<b>Waste Oil</b>									
	OR-1A	Waste Oil Tank (Heavy Duty Garage Terminal)	1978	2002	9	15	24	37.5%	62.5%	GS
3.09	<b>Waste Oil</b>									
	OR-1C	Waste Oil Tank (Caterpillar Garage)	1950	2002	37	15	52	71.2%	28.8%	USS
3.10	<b>Wastewater Treatment</b>									
	SI-4	Final Retention Pond	1968		19	17	36	52.8%	47.2%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

**Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004**

Table 3. SWMU LIST- USS'S AND GENEVA'S JOINT RESPONSIBILITY 2004										
Tier 1 SWMUs										
SWMUG NO.	SWMU	Name	Operation Began	Discontinued Use Date	Years of Operation					Responsible Permittee
					USS	Geneva	Total Years of Operation	USS Cost Share	Geneva Cost Share	
3.11	<b>Waste Solvent Storage</b>									
	MS-6	Satellite Spent 1,1,1-TCA Collection Area	1980	2002	7	15	22	31.8%	68.2%	GS
3.12	<b>Waste Solvent Storage</b>									
	MS-9	Former Satellite Spent 1,1,1-TCA Collection Site**	1980	1988	7	1	8	87.5%	12.5%	USS
3.13	<b>Skull Cracker Area</b>									
	MS-13	Skull Cracker Area	1944	2002	43	15	58	74.1%	25.9%	USS
3.17	<b>Bead Blast Area</b>									
	3.17A	Bead Blast Area**	1974	1994	13	7	20	65.0%	35.0%	USS
3.20	<b>Blast Furnace Area</b>									
	3.20A	Front-end Oil Tanks	1944	2002	43	15	58	74.1%	25.9%	USS
SWMUG NO. 4.0	<b>Facility Groundwater</b>	Perimeter Groundwater Monitoring Network**	1944		60			75.0%	25.0%	USS

\*\* Cost Splits for these SWMUs reflect periods of discontinued use or alternative cost splitting approaches

Table 4. Final Tier 2 SWMU List - 2004				
Tier 2 SWMUs				
		Responsibility		
	SWMU	Name	USS	Geneva
Tier 2	SP-12	Sinter Plant/Open Hearth Sludge Tank		100%
Tier 2	CP-15	Biological Wastewater Treatment Plant		100%
Tier 2	CBP-32	Tar Cleanout Area		100%
Tier 2	BF-G	Rubber-tired Slag Hauler Loading Areas	75.4%	24.6%
Tier 2	BF-36	Abandoned Mixed Gas Line	100%	
Tier 2	OH-27	ESP Dust Handling System	100%	
Tier 2	OH-A	Slag Pocket Areas	100%	
Tier 2	RM-10A	Former Waste Oil Tank	100%	
Tier 2	RM-10B	Current Waste Oil Tanker		100%
Tier 2	RM-13	Oil Pond Pickup Unit and Hose	59.4%	40.6%
Tier 2	SI-1, SI-2 and SI-3	Closed Hazardous Waste Impoundments	100%	
Tier 2	MS-12	Untreated Water Control/Screening Facility	75.4%	24.6%
Tier 2	MS-23	New Hazardous Waste Control Collection Area		100%
Tier 2	SI-6	Former Emergency Tar Disposal Pit	100%	
Tier 2	CP-16	COG Line Disposal Area	100%	
Tier 2	MS-21	COG Line Clean-out Area	100%	
Tier 2	BF-37	Heckett Waste Oil Tank	53.8%	46.2%
Tier 2	MS-18	Asbestos Storage Area		100%
Tier 2	BOP-2	LMF Slag Quench Water Impoundments		100%



# **ATTACHMENT 2**

## **Inspection Checklist**





# ATTACHMENT 2

## INSPECTION CHECKLIST

### A. INSPECTION PLAN

#### A.1. Structures and Facilities to be inspected

- A.1.a Run-On Diversion Ditches: The diversion ditches shall be visually inspected to assure that they can remain operable during storm events as designed. The inspection team shall look for erosion, lack of vegetative cover, and sedimentation.
- A.1.b Cover Integrity: The cover shall be examined visually to check for sliding, subsidence, settlement, tension cracking, lack of vegetation, ponding of surface water, and condition of vegetation.
- A.1.c Survey Bench Mark Settlement Plates and Monuments: The survey benchmarks, settlement plates, and monuments shall be located and visually inspected for damage or movement. If damage or movement is detected, they shall be repaired or replaced. The settlement plates shall be read in order to detect any settlement of the final cover.
- A.1.d Monitoring Wells: Monitoring wells shall be inspected during the regular sampling program.
- A.1.e Groundwater Withdrawal Wells: The groundwater withdrawal wells shall be inspected whenever the wells are sampled.

#### A.2. Frequency of Inspections

- A.2.a. Inspections shall be conducted quarterly. Inspections may coincide with sampling of the monitoring wells.

- A.2.b The monitoring well inspections and groundwater withdrawal well inspections shall coincide with the monitoring program.
- A.2.c The Permittee shall document the inspections on the Observation and Inspection Checklists included in this attachment and maintain copies on site.

**B MAINTENANCE PLAN**

- B.1. Cover Maintenance Activities and Schedule: The surface and slopes of the final cover shall be inspected for damage as outlined in I.A.2 of Attachment 1. Soil shall be replaced as required., based on needs determined from regular inspections. The repair of all surface subsidence, soil erosion problems, or slope damage shall be completed as soon as possible but no later than three days after the problem was first noticed.
- B.2. Reseeding Schedule: The cover shall be reseeded as required.
- B.3. Fertilizing Schedule: Fertilizer shall be applied as necessary.
- B.4. Rodent and Insect Control: During the routine inspections, the cap and final cover shall be carefully scrutinized for animal burrows or insect mounds and repaired as required.
- B.5. Erosion Control: The activities for erosion control shall include excavation of sediment deposits, replacement of eroded soil, replacement of eroded slag and other compaction, installing of energy dissipation structure as required and reseeded as applicable. Any repair will be completed as soon as possible but no later than three days after the problem is first observed.
- B.6. Maintenance of Groundwater Monitoring System: The Permittee shall inspect and maintain the groundwater monitoring system to meet the requirements of Module III.
- B.7. Hazard Signs: If it is observed during the periodic inspections that the identification or hazard signs are damaged or in need of maintenance, the damaged portion will be repaired or replaced.

**Observation And Inspection Checklist**

<b>ITEM</b>	<b>General Condition</b>	<b>Change From Previous Inspection</b>	<b>Action Taken By Inspector</b>
<b><u>General Condition Of The Site Cap</u></b>			
Signs of Sloughing or Sliding at out Slopes Signs of Subsidence Evidence of Sheet Erosion Evidence of Gully Erosion Evidence of Boggy Area Extent of Vegetation Cover Condition of Vegetation Cover Changes in Vegetation Evidence of Rodent Damage			
<b><u>Conditions Of Ditches</u></b>			
Evidence of Erosion Obstruction of Flow Conditions of Structures and Appurtenances Condition of Vegetative Lining			
<b><u>Decant Inlet and Pipes</u></b>			
Clogging at Inlet Clogging at pipes Characteristic of Discharge Signs of Corrosion Signs of Cracking or Crushing Erosion Condition at Inlet Erosion Condition at Discharge			
<b><u>Concrete Structures</u></b>			

Cracking Spalling Areas of Seepage Vertical, Horizontal or Tilting Movements			
<b><u>Instrumentation</u></b>			
Settlements Monuments and Bench Marks Vent Stacks Monitoring Wells and Pump Wells Hazard Signs			

**Discussion**

LEGEND REPORTING CODE

<b><u>General Conditions Column</u></b>	<b><u>Changes Column</u></b>	<b><u>Action Taken Column</u></b>
NA - Not Applicable	NA - Not Applicable	RM - Routine Maintenance
NU - Nothing Unusual	NC - No Changes	ND - Notified Designer
AR - Action Required	I - Improved from Previous Inspection	RC - Repair Completed
D - See Discussion	D - See Discussion	D - See Discussion

**Inspector Signature**

**EXPLANATION OF INSPECTION OBSERVATIONS**

**GENERAL CONDITION OF THE SITE CAP AT OUT SLOPES**

<b><u>ITEMS INSPECTED</u></b>	<b><u>DESCRIPTION OF ITEMS TO BE OBSERVED</u></b>	<b><u>CORRECTION METHOD</u></b>
Signs of Sloughing or Sliding at the Out slopes	Check for bulging along or at the base of the slopes and the formation of vertical displacement and cracking at or along the top of the distressed area. Special care	Repair slide area by replacement with suitable material. Use straw bales as necessary to control erosion
Signs of Subsidence	Check for settlements due to consolidation of soft foundation material. Evidenced by bowl-shaped depressions, possibly impounding water. Care shall be exercised in areas of heavy vegetation to avoid overlooking such areas.	Clear vegetation in the area. Repair low spots by filling to grade with off-site borrow material. Fertilize, seed and mulch as necessary to re-establish vegetation. Use straw bales as necessary to control erosion.
Evidence of Sheet Erosion	Check areas, which lack ground cover. Sheet erosion is evidenced by surficial loss of soil in a somewhat	Regrade as necessary. Fertilize, seed, and mulch to establish vegetation. Use straw bales to control erosion if necessary.
Evidence of Gully	Check areas which lack ground cover. Gully erosion is due to the effects of the concentration of overland flow and results in the creation of narrow and deep channels.	Regrade as necessary. Replace eroded material with suitable off-site borrow. Fertilize, seed, and mulch to establish vegetation. Use straw bales as necessary to further check erosion.

Evidence of Boggy Area	Check for evidence of wet or boggy area. Evidenced by areas where vegetation may be thriving due to moist conditions or ponded water may be present.	Clear vegetation in the area. Repair low spots by filling off-site borrow. Fertilize, seed, and mulch. Use bales as necessary.
Extent, Condition, and Changes in Vegetation Cover	All areas that were seeded shall have a well-developed vegetation cover, which is uniform and continuous. Irregularities such as difference in color. Density, rate of growth, type of growth, or a difference in the character of the vegetation will be noted.	Sample soils to determine nutrient deficiencies. Apply fertilizer amounts as specified by soil analysis, followed by seed and mulch application
Evidence of Rodent Damage	Check for the presence of animal burrows or insect mounds.	Notify local exterminating and pest control company. After application of pesticide or rodenticide, backfill and regrade areas involved. Apply fertilizer, seed, and mulch.

### **DECANT INLETS AND PIPES**

<b><u>ITEM INSPECTED</u></b>	<b><u>DESCRIPTION OF ITEMS TO BE OBSERVED</u></b>	<b><u>CORRECTION METHOD</u></b>
Spalling	Concrete structures (inlets and walls) shall be inspected for spalling as evidenced by the removal of the concrete matrix at the surface. The remaining surface will be rough, and the aggregate will be exposed	If spalling is severe causing inlet or end wall to not function as desired, then structure replacement is necessary.

Areas of Seepage	Concrete catch basins Inlet 1 and 2. Shall be inspected to verify that the weep holes are free from debris and functioning.	Remove debris from weep hole, and clean as necessary
Vertical, Horizontal or Tilting Movements	Check to verify that vertical and horizontal elements of end walls and inlets are plumb	If movement or tilting is causing the inlet or end wall not to function as designed, then structure replacement is necessary
Clogging	Check for debris or accumulation of other material at the inlets 1. and 2. Check the riser in Ponds 1 and 2 for accumulation of debris. Siltation in the inlets may clog Discharge Pipes 1 and 2.	Remove accumulated debris from all inlets and risers. Clear out catch basins. Unplug pipelines by rodding out or flushing.
Characteristic of Discharge	Evaluate the character and quantity of water flowing into and out of all pipes. If inflow differs from the outflow, it is possible that cracks or open joints are allowing flow to escape or providing additional flow to the pipe	Where open joints or cracks in the pipes are suspected, the pipes should be inspected. Damaged pipes or joints should be excavated and repaired.
Corrosion, Cracking, or Crushing	Check for corrosion, cracking, or crushing at all visible portions of pipes. Settlement above the pipelines may indicate that the pipe has been crushed. Tilted riser pipes in the sedimentation ponds indicate that corrosion may have	Replace damaged pipe as necessary.



	occurred. Loss of pond volume may also indicate corrosion of the riser has occurred.	
Erosion at Inlet and Outlet	Check for erosion at inlet to pipes which can result in solids being carried into the pipelines. Erosion at the discharge of pipes is evidenced by undercutting the discharge point or undercutting the toe of adjacent slopes	Regrade as necessary. Replace eroded material. Fertilize, seed, and mulch as appropriate. Provide energy dissipators at discharge points

### **CONDITIONS OF DITCHES**

<b><u>ITEM INSPECTED</u></b>	<b><u>DESCRIPTION OF ITEMS TO BE OBSERVED</u></b>	<b><u>CORRECTION METHOD</u></b>
Evidence of Erosion	The banks and beds of all ditches (A,B,C, and D) shall be examined to determine if erosion or siltation has occurred. Erosion is evidenced by sides that are steeper than shown on the plans or by localized irregularities in configuration.	Re-establish proper ditch configuration. Reseed to establish vegetative cover.
Obstruction to Flow	Check for sloughed-in soil, other foreign objects, excessive vegetative growth, or siltation due to erosion.	Remove all obstructions and repair ditch to original configuration. Revegetate as necessary.
Condition of Structures	The condition of all structures and appurtenances that are a part of the ditches	Repair or replace structure. Remove obstructions to inlets and

	should be noted, including culverts, inlets, endwall, risers, etc. Check for accumulation of debris, settlement or movement, cracks, rust, scour, and erosion	pipes. Regrade and revegetate as necessary.
Condition of Vegetative Lining	Check that vegetation covers all ditches, is uniform and continuous. Note differences in vegetation colour, density, type of growth, and character of vegetation	Sample soils in areas of bare spots to determine nutrient requirements. Remove unsuitable materials if necessary. Replace with suitable material and revegetate.

### **INSTRUMENTATION**

<b><u>ITEM INSPECTED</u></b>	<b><u>DESCRIPTION OF ITEMS TO BE OBSERVED</u></b>	<b><u>CORRECTION METHOD</u></b>
Settlement Monuments and Bench Marks	Inspect settlement monuments and bench marks to see that they are still in existence and in good condition. Obvious tilt of the settlement monument shall be noted.	Relocate and re-establish bench marks and settlement monuments as necessary.
Vent Stacks	Check that the PVC vent stacks are not cracked or damaged and that the pipe is not obstructed.	Repair or replace pipe if damaged. Remove obstructions in pipe as necessary.
Monitoring Wells and Pump Wells	Check that covers and locks are secure and operable.	Repair or replace cover if damaged. Severe damage to a well may necessitate well redrilling.
Hazard Signs	Check to see that the hazard	Repair damaged, illegible

	signs are still in existence.	signs or replace if necessary.
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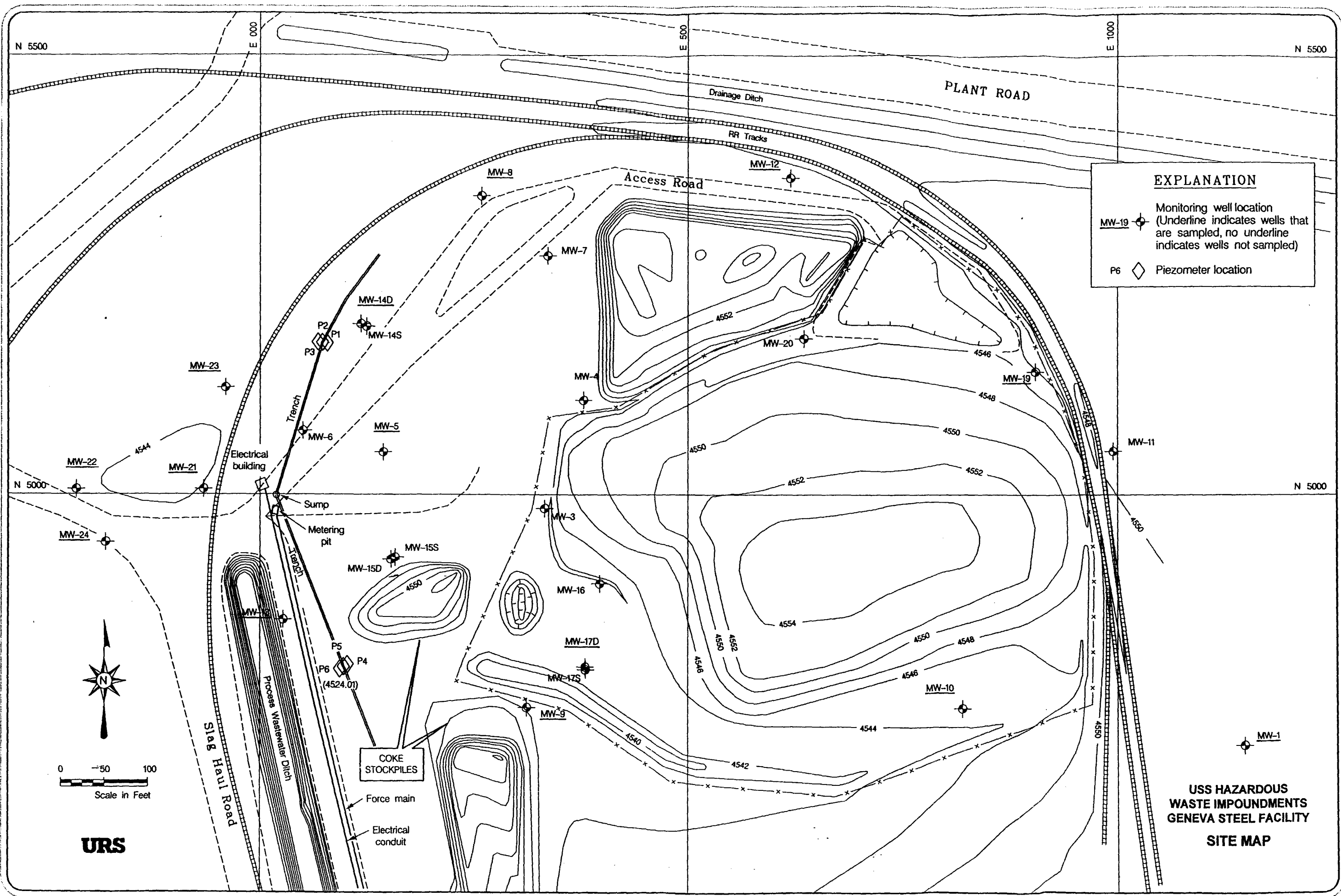
**CONCRETE STRUCTURES**

<b><u>ITEM INSPECTED</u></b>	<b><u>DESCRIPTION OF ITEMS TO BE OBSERVED</u></b>	<b><u>CORRECTION METHOD</u></b>
Cracking	Inspect concrete structures (Inlet and end Walls) for cracks. If cracks are noticed on a particular structure, other similar structures shall be checked for evidence of cracks.	If cracking is severe causing inlet or end wall to not function as designed, then structure replacement is necessary.

# **ATTACHMENT 3**

## **Facility Maps**





**EXPLANATION**

Monitoring well location  
(Underline indicates wells that are sampled, no underline indicates wells not sampled)

P6 Piezometer location

**USS HAZARDOUS  
WASTE IMPOUNDMENTS  
GENEVA STEEL FACILITY  
SITE MAP**

08 MAR 101  
11:28:20  
T:\08mar101\cadd\10010001.dgn

**URS**











# **ATTACHMENT 4**

## **SAMPLING PROCEDURES TEST METHODS**



## ATTACHMENT 4

### SAMPLING PROCEDURES TEST METHODS

#### CHAPTER 1

#### 1.0 SAMPLING QUALITY ASSURANCE AND QUALITY CONTROL

#### 1.1 GENERAL

##### 1.1.1 Level of Experience

All sampling personnel shall be acquainted with the sampling requirements of this program, the associated documentation, field procedures, preservation methods, cleaning and decontamination requirements, health and safety requirements, use of equipment, and any pertinent protocols prepared by Permittee. The team leader shall have at least one year of experience in groundwater sampling.

##### 1.1.2 Manpower

At least two sampling persons shall be present at each sampling.

##### 1.1.3 Duration

Water levels in all wells shall be measured within a 24 - hour period. All wells shall be sampled within a 96 - hour period. Delays beyond this time shall be documented and explained in the report for the monitoring event.

##### 1.1.4 Equipment Constraints

Samples will be obtained with a submersible pump, a peristaltic pump, or a bailer if needed. The pumps shall be equipped with flexible inert tubing. The tubing shall be dedicated for each well if possible. If it is not possible to have dedicated tubing, new clean tubing shall be used for each well. Bailers shall be either fluorocarbon resin material (Teflon) or stainless steel with fluorocarbon coated wire or fiberglass or single-strand, stainless steel wire. Each bailer shall be equipped with a ball check valve in the bottom, which forms a watertight seal when raised. Submersible pumps shall be stainless steel in construction and decontaminated properly between each well.

1.1.5 Sample Containers Composition

Sample containers will be of the compositions and volumes indicated in Table 1.

1.1.6 Decontamination, Cleaning, and Storage of Sampling Equipment and Containers

All sampling equipment will be cleaned using the decontamination procedures outline below before each use. To minimize the potential for cross-contamination between wells, all downhole sampling equipment will be decontaminated between wells, according to the procedures outlined below.

Sample equipment will be cleaned and prepared for field use according to the following procedures:

- a. Laboratory-grade detergent and potable water wash
- b. Potable water rinse
- c. Triple deionized water rinse

The sample equipment shall be allowed to air dry to the extent possible. All sampling equipment will be stored in an area where no contamination will occur.

1.1.7 Sample Container Labeling

Sample bottles will be prelabeled to the extent possible before the bottles are shipped to the site. In order to maintain confidentiality, the site will not be identified as a Permittee named facility nor its geographic location listed. Sample labels will include the following information:

- a. Sample number as noted in field logbook
- b. Sample type; i.e., parameters for analysis
- c. Organization collector represents (employer)
- d. Name of collector
- e. Date and time of collection

1.1.8 Preservatives

All sampling containers shall come from the lab with the appropriate preservatives as shown in Table 1 and shall be shipped from the laboratory with the appropriate preservatives (see Table 1) already added to the appropriate containers.

1.1.9 Preparation and Specifications of Water, Reagents, and Preservatives

The following water quality will be required for dilutions, blanks, and final rinse water:

<u>Analysis</u>	<u>Water Type</u>	<u>Reference</u>
Metals	ASTM Type II	SW846
Organics	Organic Free Water	SW846
pH	Distilled Water	EPA-600/4-79-019
Sulfate, Chloride	Distilled Water	EPA-600/4-79-019
Specific Conductance	Distilled Water	EPA-600/4-79-019
Total Organic Halogen	Reagent Water	SW846 TOX Method 9020
Total Organic Carbon	C02 Free, Double-Distilled Water	EPA-600/4-79-020

#### 1.1.10 Blanks, Duplicates, and Quality Control

Two types of blanks pertain to sampling quality control: the trip blank and the equipment blank. Trips blanks for VOA analysis will be prepared in the lab by filling each sample bottle with distilled water. The blanks will be transported to the site, handled as any other sample, and returned to the lab in the same manner. If there is reason to suspect that certain detected parameters are due to contamination in handling, the suspected contamination can be evaluated by analyzing the trip blank.

One VOA trip blank (consisting of 3 VOA vials) must be prepared for each cooler that contains VOA samples. Trip blanks for other parameters are optional.

Note that it is important to prepare trip blanks in a clean atmosphere. VOA blanks are particularly vulnerable to contamination from many sources; for example, electrical tape can cause vinyl chloride contamination, and silicone sealant can cause methylene chloride contamination.

Equipment blanks are collected to test decontamination procedures and are prepared principally when non-dedicated sampling equipment is used (i.e., pumps). This will indicate the effectiveness of the field equipment decontamination. At least one set of equipment blanks will be collected per event. Laboratory-grade distilled water shall be used and the blank shall be collected in the same fashion as the actual sample.

Matrix Spike and Matrix Spike Duplicate (MS/MSD) samples are collected to evaluate the effects of sample matrix on the precision and accuracy of the analytical methods. MS/MSD samples shall be collected immediately after collection of the primary sample in the same manner and using the same types of containers. The MS/MSD

samples shall be labeled in a way that indicates which primary sample they are associated with.

Points will be selected for quality control prior to initiation of the sampling program. At the points selected for quality control, either a duplicate (to check analytical precision) or a field blank (to check sampling precision) will be collected. Duplicate and field blank samples will be handled no differently than any other samples. One duplicate will be prepared for every 10 samples.

Field blanks will be collected by pouring laboratory-grade distilled water into the appropriate sample containers located near the well head. Site conditions should be the same as at the time of sample collection. The field blank sample for metals analysis will not be filtered.

Duplicate samples are a check on laboratory precision and, as such, must be identified in the field so that the laboratory is unaware of which sample has been duplicated. It is imperative that the sample numbers selected for the split sample be recorded in the field log book since this will be the only record of the splitting.

Duplicate samples shall be collected by alternately filling the primary and the duplicate sample containers. Both samples are then handled in the same manner as all other samples.

As stated above, a VOA trip blank shall be prepared for each cooler containing samples for volatile organic analysis. At least one equipment blank, one duplicate, one field blank, and one MS/MSD set must be collected for each event.

## 1.2 GROUNDWATER SAMPLING

### 1.2.1 Field Instruments Preparation

Prior to shipping to the field, all instruments shall be tested to ensure they are operating correctly. Tests shall include battery checks, calibration with standard reference solutions, and calibration checks against other standard reference solutions. Reference solutions shall bracket the anticipated (probable) range to be encountered. Recalibration shall be performed in the field as necessary should the calibration range be higher or lower than field conditions.

Instrumentation reference solutions and other pertinent data required for this sampling program are shown in Table 2.

### 1.2.2 Field Instrumentation Calibration

After shipping to the site and prior to actual sampling, all field instruments shall be calibrated as indicated on Table 2 as follows:

a. pH Meter

The pH meter must be calibrated at least once each day using two different pH buffer solutions. The probe must be rinsed thoroughly between buffer measurements with distilled/deionized water and again after calibration is completed. The buffer solutions used will be recorded in the field logbook. A third pH buffer solution in the expected pH range of the well water samples will be used to check the pH meter standardization. If the reading differs by more than 0.1 pH units, the instrument will be recalibrated. If unacceptable deviations still occur, the operating manual will be consulted for the prescribed action; or an alternate, properly functioning pH probe will be used.

b. Specific Conductivity Meter

The specific conductance/thermistor meter is less likely to exhibit random fluctuations and will only require daily standardization against a known KC1 solution. Thoroughly rinse the probe with distilled/deionized water after immersing in the KC1 standard solution. Note that specific conductance is temperature dependent; and, therefore, the meter readings must be adjusted to reflect the temperature of the standard solution

c. Temperature Measurement

Probe temperature readings must also be checked daily. This is accomplished by taking a temperature reading using the probe and comparing with temperature measurements made using a mercury thermometer. If the temperature probe is not properly calibrated, the probe will be brought into calibration according to the manufacturer's recommendations as specified in the operation/maintenance manuals provided with the unit.

d. Total Water Quality Meter

If a water quality meter is used (measuring pH, temperature, dissolved oxygen, conductivity, turbidity, and salinity in one unit) calibration shall be performed daily during sampling by submersing the unit in a container of the appropriate auto-calibration solution. All reading shall be recorded in the log book and

checked against the standard value for the solution (given on the solution container). If the readings deviate more than the given tolerance (see calibration solution container), recalibrate the unit. If unacceptable deviations still occur, the operating manual will be consulted for the prescribed action; or an alternate, properly functioning water quality meter will be used.

### 1.2.3 Sequence of Well Sampling

The wells shall be sampled in the following order. *MW-1, MW-19, MW-14D, MW-17D, MW-23, MW-24, MW-10, MW-12, MW-22, MW-21, MW-9, MW-8, MW-13, and MW-5.*

### 1.2.4 Field Log Book

The field logbook is a bound, consecutively paginated notebook used to record field data measurements and observations. It serves as the permanent record of all events occurring during the sampling event.

Entries into the logbook must be made in waterproof ink. Information during each event will vary according to site-specific facilities procedures and conditions but will, at a minimum, contain the following details:

- a. Sampling date and time
- b. Sampling locations and identification numbers
- c. Purpose of sampling
- d. Names of field crew present at the site
- e. Brief description of weather conditions including temperature reading, wind direction and strength, and precipitation
- f. Identification of well and initial groundwater level measurement, and total depth of well
- g. PID readings, odors, and other readings pertaining to air quality
- h. Time well was purged, well evacuation details prior to sampling (to include purge volume), sample collection procedure, and well sampling sequence.



- i. Final field water quality measurements including:
  - 1) pH
  - 2) Specific Conductance
  - 3) Water Temperature
- j. Types of sample containers used and sample identification numbers, parameters to be measured, sampling remarks/observations, identification of blanks, duplicates, etc.
- k. Sample numbers and identification of duplicate samples, sample distribution and transporter, collection of quality assurance/control samples.

Each page must be initialed by the individual keeping the logbook. Upon returning to the office, a copy of the field log entries will be provided for the project files.

#### 1.2.5 Vapor Detection at the Well Head

Prior to removing any well water or taking any level measurements, the air space within the protective casing will be monitored by a photoionization detector (PID). The humidity of the well may interfere with the operation of the PID in which case the probe may be held beside the well head for vapor detection.

All readings must be noted in the field logbook. In the event of readings above background, the sampling team will move upwind until the vapors have cleared.

#### 1.2.6 Water Level Measuring and Detection/Sampling of Immiscible Layers

Based on the past 8 years of groundwater sampling, floating or submerged immiscible layers are not expected. However, while not expected, floating or submerged immiscible layers may exist. Should this occur, the sampling plan shall be revised to allow for sampling the floating and submerged layers and for evaluating volatile organic acids, acid extractables, and base neutrals.

Prior to evacuation of the wells, the following procedures should be implemented:

- a. Remove locking and protective caps

- b. Sample the air in the well head for organic vapors using a PID; record measurement, and allow the vapors to clear prior to recording water levels
- c. Determine from top of casing the static groundwater level using a water level meter as well as the total well depth. Record to the nearest 0.01 feet. The probe, which contacts the water surface, must be rinsed three times with distilled water between each well.
- d. Lower a dual-interface probe into the well, or product gauging paste applied to a water level probe, to determine the existence of any immiscible layers(s), light and/or dense.
- e. If immiscible layer(s) are detected, sample the layer with a peristaltic pump or a top filling fluorocarbon resin bailer.
- f. Evacuate the well as required.

#### 1.2.7 Well Volume Calculations

The firm performing the sampling will obtain the elevation of the reference mark on the PVC casing or the top of casing from Permittee prior to sampling.

As discussed in Section 1.2.6, groundwater elevation shall be measured by a water level meter accurate to within 0.01 feet. Measurements are taken with respect to the depth below the reference mark located on the well casing or the top of casing and recorded in the field logbook. By subtracting the depth to water surface from the depth of the well and referring to Table 3, the sampling team will calculate the volume of water contained in the well.

Note that any reporting of water level measurements must be with respect to mean sea level in units of feet.

#### 1.2.8 Well Evacuation

Wells shall be evacuated until the pH, specific conductance, and temperature readings have stabilized (10 percent). At a minimum, indicator parameters will be measured at least 5 times. At least three well volumes will be evacuated as determined in Section 1.2.7, unless the well is purged dry. If the well recharges slowly (i.e., time for evacuation of one well volume is greater than 30 minutes and

the well is almost dry) only one evacuation is necessary. Samples may then be taken after the well has sufficiently recharged.

All dedicated sample equipment shall not be allowed to contact the ground. The dedicated tubing will be coiled on to a clean plastic sheet and not allowed to contact the ground.

To prevent degassing of volatiles from the water, the peristaltic or submersible pump must be operated so as to not exceed a maximum flow rate of 100 ml/minute during purging and sample collection. If a bailer is used it will not be allowed to drop into the well. The check valve (s) must be periodically observed as ongoing experience indicates, for fouling may result in reduced delivery capacity or in aeration of the sample.

The PID will be used to monitor the atmosphere in the immediate vicinity of the well head while purging and sampling operations occur. Readings above background will result in immediate evacuation of the well head until the vapors have dispersed.

The presence of floating or submerged layers must be noted in the field log book as well as pertinent observations such as color, clarity, odor, etc.

Activities, which may contribute to contamination during sampling, such as decontamination activities, are strictly prohibited in the immediate sampling area.

#### 1.2.9 Sequence of Sample Withdrawal

Samples will be collected and containerized in order of the volatilization sensitivity of the parameters. The order of collection will be:

- a. Volatile organics \*
- b. Semi-volatile organic acids\*
- c. Total organic halogens\*
- d. Total organic carbon\*
- e. Acid extractable and base neutral compounds\*\*
- f. Total metals

- g. Dissolved metals
- h. Phenol
- i. Cyanide
- j. Sulfate
- k. Nitrate

\* Sample vials will be filled so there are no air spaces

\*\* Bottles will be filled so there is minimal air space. Caps shall be secured snugly but not tightly to prevent backing off of the caps and introduction of air.

Samples will be collected in a controlled manner with a minimum of agitation.

Sample containers will be filled in accordance with the requirements shown in Table

1. The pH and specific conductance also will be measured at the lab.

#### 1.2.10 Sample Filtration

Samples for dissolved metals must be field filtered through sterile-packaged 0.45-micron filters prior to adding to sample container. Filters will be glass, polyethylene, or equivalent inert material and the type and brand will be noted in the field logbook.

#### 1.2.11 Sample Storage

All sample containers must be immediately put on ice and maintained at a maximum temperature of 4°C until the samples are analyzed. Sample storage times in the field will be kept to a minimum and samples will be submitted to the laboratory on a daily basis.

### 1.3 SAMPLE DOCUMENTATION

#### 1.3.1 Sample Custody Seals

Sample Cooler seals will be placed on every cooler in order to detect unauthorized tampering of samples following sample collection up to the time of analysis. Laboratory supplied seals will be used for this purpose. The seal will include the following information:

- a. Collector's name and signature
- b. Date and time of signature

The seal must be attached in such a way that it is necessary to break it in order to open the container. Seals must be affixed before the samples leave the custody of sampling personnel. Seals of electrical tape or glue or sealant are unacceptable.

### 1.3.2 Chain of Custody

Sample custody forms must be completed at the time of sampling in accordance with the requirements of SW-846 (See Figure 1). The specific analysis for each sample must be provided on the form. A detailed list of required analysis may be attached to the form if required. The following chain of custody procedure must be implemented by the field team leader to assure sample integrity.

Samples will be under custody of the sampling team leader. The samples will be considered in custody when:

- a. They are in his/her possession;
- b. They are in view after being in possession;
- c. They are locked up or sealed securely to prevent tampering; or
- d. They are in a designated secure area.

The original of the sample custody form must accompany the samples at all times after collection. A copy of the sample custody form will be held by the sampling team leader.

When samples are transferred in possession, the individuals relinquishing and receiving will sign, date, and note the time and sample or sampling chest condition on the form.

All persons handling the samples must sign for delivery and for receipt. A carbon copy will be retained by the sampling team leader and will be given to the project manager for the project file after the sampling crew returns to the office. When the laboratory completes the analyses, this original is to be returned by the laboratory to the project manager for the project files.

### 1.3.3 Sample Delivery

After the samples have been collected, it will be the responsibility of the sampling team leader to arrange for delivery of the shipping containers to the laboratory and to assure that the proper chain of custody is documented. The field team leader or designee must either overnight mail or deliver the samples to the laboratory as soon as possible after returning from the sampling trip. If overnight mail is used it is imperative that the sample containers be packaged properly in order to prevent breakage and to maintain a maximum temperature of 4°C. Also the laboratory should be contacted to ensure that someone will be at the laboratory to receive the samples and make sure they are checked in and stored properly.

Upon transfer of sample custody, the shipping containers will be examined to certify that they have not been disturbed. This observation, the deliverer's and receiver's signatures, and dates and times of custody transfer must be noted on the chain of custody form. The original and duplicate chain of custody forms must accompany these samples and be signed by the laboratory. The chain of custody form will remain with the samples and the completed form will be returned by the laboratory along with the results of the sample analyses for placement in project files.

### 1.3.4 Documentation and Document Routing

Upon returning to the office, the sampling team leader must:

- a. Provide a copy of the field log pages for the project file. The field log book must be stored in a secure area for safekeeping.
- b. Place the copy of the custody form in the project files. When received from the laboratory, the original custody form must also be placed in the project files.

### 1.3.6 Data Deliverables and Evaluation

For analyses associated with the Hazardous Waste Surface Impoundments, the laboratory will provide a data package that includes QC data but not raw data. Data deliverables for RCRA activities conducted as part of the VIWP implementation will be presented in the Notification Letter and consistent with the methodology defined in the VIWP. The laboratory Practical Quantitation Limits (PQL=s) will serve as the detection limit for parameters analyzed.

Data received from the laboratory will be reviewed by a chemist and a data validation report prepared describing the validation process and presenting the validated data. Validated data will be used for submittals to the UDEQ where data quality is a requisite for decision making and the validation report submitted along with the laboratory results. Data used as a screening tool may not be subject to validation.

## CHAPTER 2

### 2.0 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PLAN

#### 2.1 GENERAL

##### 2.1.1 Laboratory

The laboratory(s) invited to perform the analyses outlined in Table 1 will submit a Quality Assurance/Quality Control (QA/QC) plan to Permittee. No analytical work will be performed until the QA/QC plan has been reviewed and approved by Permittee.

The laboratory will follow EPA guidelines and meet EPA requirements as outlined in:

- a. SW-846, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods, 11 Third Edition (November 1986); Final Update I, July 1992; Final Update IIA, August 1993; Final Update II, September 1994; Final Update IIB, January 1995; Final Update III, June 1997.
- b. EPA-600/4-79-020, "Methods for Chemical Analysis of Water and Wastes," revised March 1983.
- c. EPA-600/4-79-019, "Handbook for Analytical Quality Control in Water and Wastewater Laboratories," 1979.
- d. QAMS - 005/80, "Interim Guidelines and Specifications for Preparing Quality Assurance Plans," 1980.
- e. 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act."

##### 2.1.2 Laboratory Certifications

Laboratories performing analytical work to support groundwater monitoring under Section V of this Permit are required to be certified by the Utah Department of Health, Division of Laboratories (a Certified Laboratory®). Ten percent (10%) of any analyses performed under a screening program by a non-certified laboratory (such as a close-support field laboratory) shall be sent to a Certified Laboratory as a quality-control measure. Any determination of No Further Action under Permit Conditions must be supported by at least one verification analysis performed by a Certified Laboratory. In addition to the Utah Certification, a Certified Laboratory shall have one of the following certifications or approvals:

- a. EPA Public Drinking Water Supply Certification
- b. EPA Contract Laboratory Program
- c. U.S. Army **Environmental Center** Contract Laboratory Program.

#### 2.1.3 Laboratory Administration

The laboratories performing analytical work will be required to include the following information on their QA/QC plan:

- a. Laboratory organization and chain of command including whom will be Permittee's contact person in the laboratory, the sample custodian, supervisors, and analysts, identifying-specific persons via flow chart or other method.
- b. Description of each position, its requirements including experience, certifications, and degrees.
- c. Seminars and training programs to which laboratory employees are sent including safety and right-to-know training.
- d. Resumes of all personnel to be involved in the analytical program.

#### 2.1.4 Analytical Methods

Where possible, analytical methods will be in accordance with the methods specified in:

- a. SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition (November 1986); Final Update I, July 1992; Final



Update IIA, August 1993; Final Update II, September 1994; Final Update IIB, January 1995; Final Update III, June 1997.

- b. EPA-600/4-79-020, "Methods for Chemical Analysis of Water and Wastes," March 1983 Revision.
- c. 40 CFR 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act: Final Rule and Interim Final Rule and Proposed Rule," October 26, 1984.

In cases where this is not possible, a reference method will be given from the best available source.

Table 1 summarizes analytical requirements.

#### 2.1.5 Water Quality

The following water quality will be required for dilutions, blanks and final rinse water, and in analytical procedures.

<u>Analysis</u>	<u>Water Type</u>	<u>Reference</u>
Metals	ASTM Type II	SW846
Organics	Organic Free Water	SW846
pH	Distilled Water	EPA-600/4-79-019
Specific Conductance	Distilled Water	EPA-600/4-79-019
Total Organic Halogen	Reagent Water	SW846 TOX Method 9020
Total Organic Carbon	C02 Free, Double-Distilled Water	EPA-600/4-79-020

#### 2.1.6 Solvent, Reagent, and Reference Quality

All solvents and reagents shall be American Chemical Society (ACS) Certified Grade and will conform to specifications set by the Committee on Analytical Reagents of the ACS where such specifications exist (ASTM Volume 11.02, page 64).

All standards will be ACS reference grade standards or will be prepared from ACS analytical reagent grade chemicals using ACS approved methods. For calibration

purposes, standards will be purchased or prepared to bracket the anticipated range for each analyte.

2.1.7 Laboratory Quality Assurance Program Plan

The Permittee will maintain the Quality Assurance Program Plan and Analytical Support Plan for each of the laboratories used for environmental sampling at the facility. The QA/QC plan will contain Standard Operating Procedures (SOPs) for all activities that could directly or indirectly influence the data quality plus SOPs for all analyses and instrumentation that will be used in the program. SOPs will include corrective action procedures for improperly functioning equipment, data of unacceptable quality, samples of questionable integrity and discovery of sample contamination. Quality assurance goals for analytical parameters by test method will be identified.

2.1.8 Quality Control for Analytical Performance

Quality control for analytical performance will be performed on a daily basis for each parameter. Quality control will be performed to assess both accuracy and precision by establishing upper and lower control limits using EPA accepted procedures.

**SAMPLING AND PRESERVATION PROCEDURES FOR DETECTION  
MONITORING<sup>a</sup> (Cont.)**

References: Test Methods for Evaluating Solid Waste – Physical/Chemical Methods,  
Final Update III, June 1997 (SW-846)  
Methods for Chemical Analysis of Water and Wastes (EPA-600/4-79-020, March  
1983.  
Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> edition,  
1992

- <sup>b</sup> CONTAINER TYPES: G = Glass  
P = Plastic (polyethylene)  
T = Fluorocarbons resins ( PTFE, Teflon®, FEP, PFA, etc.)
- <sup>c</sup> Based on the requirements for detection monitoring (265.93), the owner/operator must collect a sufficient volume of groundwater to allow for the analysis of four separate replicates.
- <sup>d</sup> Shipping containers (cooling chest with ice or ice pack) should be certified as to the 4°C temperature at the time of sample placement into these containers. Preservation of samples required that the temperature of collected samples must be adjusted to the 4°C immediately after collection. Shipping coolers must be at 4°C and maintained at 4°C upon placement of sample and during shipment. Maximum-minimum thermometers are to be placed into the shipping chest to record temperature history. Chain of Custody forms will have shipping/receiving and in-transit (maximum/minimum) temperatures for recording data and verification.
- <sup>e</sup> Do not allow any head space in the container.
- <sup>f</sup> Use ascorbic acid only in the presence of oxidizing agents.



TABLE 1

**SAMPLING AND PRESERVATION PROCEDURES FOR DETECTION MONITORING**

Parameter	Recommended Container <sup>b</sup>	Preservative	Maximum Holding Time	Minimum Volume For Analysis
<b><u>Indicators of Groundwater Contamination<sup>c</sup></u></b>				
pH	P, G	None	None	250 ml
Specific conductance	P, G	None	None	125 ml
TOC	G amber, T-lined cap <sup>e</sup>	Cool 4°C <sup>d</sup> , HCl to pH<2	28 days	125 ml
TOX	G amber, T-lined septa or caps	Cool 4°C, add 1.1 M sodium sulfite	28 days	500 ml
<b><u>Groundwater Quality Characteristics</u></b>				
Phenols	G (amber)	4°C/H <sub>2</sub> SO <sub>4</sub> to pH<2	28 days	2 x 1000 ml
Sulfates	P,G	Cool 4°C	28 days	250 ml
<b><u>EPA Interim Drinking Water Characteristics</u></b>				
<b><u>Total Metals</u></b>				
Arsenic, Barium, Cadmium	P, G	Field acidified to pH<2 with HNO <sub>3</sub>	6 months	600 ml
<b><u>Dissolved Metals</u></b>				
Chromium, Lead, Selenium, Nickel	P, G	1) Field filtration (0.45 micron) 2) Acidify to pH<2 with HNO <sub>3</sub>	6 months	600 ml
Mercury	P, G	1) Field filtration (0.45 micron) 2) Acidify to pH<2 with HNO <sub>3</sub>	6 months	400 ml
Ntrate/Nitrite	P, G	4°C/H <sub>2</sub> SO <sub>4</sub> to pH<2	28 days	125 ml
<b><u>Other Groundwater Characteristics of Interest</u></b>				
Cyanide	P	Cool 4°C NaOH to pH 12, 0.6g ascorbic acid <sup>f</sup>	14 days	1000 ml
Semi-volatiles, non-volatile organics	G, T-lined	Cool 4°C	Extract - 7 days; Analyze Extract - 40 days	4 x 1,000 ml
Volatiles	G, T-lined <sup>g</sup>	Cool 4°C; HCl or H <sub>2</sub> SO <sub>4</sub> to pH<2	14 days	2 x 40 ml



TABLE 2

**FIELD INSTRUMENTATION AND CALIBRATION**

Instrument	Standard	Calibration* Interval (In Field)	Calibration* Check Interval (In Field)
pH Meter	Buffers pH 4.00, 7.00, 11.00	Daily (as required by 1.2.2.a)	Performance-based, discretionary
Specific Conductivity Meter	KCL solutions	As required by 1.2.2.b	Daily
Temperature measuring device	Thermometer	As required	Daily
Organic Vapor Analyzer (OVA) (PID alternative)	Methane in hydrogen gas carrier per mfr.'s specification	Daily	Performance -based discretionary
Photoionization Dector (PID) (OVA alternative Total Water Quality Meter (for pH, temperature, dissolved oxygen, conductivity, turbidity, and salinity)	Benzene	3 Days	Daily
	Auto-calibration solution	Daily	Daily
Combustible Gas Meter (only for confined or poorly ventilated spaces)	Methane	Daily	Performance-based discretionary

\* Actual field performance may require more frequent calibration and calibration checks than indicated on this table.





TABLE 3

**WELL FLUSHING DATA**  
**VOLUME OF WATER IN WELLS OF VARIOUS DIAMETERS**

Nominal Well Pipe Size (Inches)	Well Pipe Inside Diameter (SCH 80 PVC) (Inches)	<u>Volume of Water for length of Water Column Shown</u>											
		1'		2'		3'		4'		5'		10'	
		<u>ml</u>	<u>gal.</u>	<u>ml</u>	<u>gal.</u>	<u>ml</u>	<u>gal.</u>	<u>ml</u>	<u>gal.</u>	<u>ml</u>	<u>gal.</u>	<u>Liters*</u>	<u>gal.</u>
1	0.957	141	0.04	282	0.08	423	0.12	564	0.16	705	0.2	1.4	0.4
1.25	1.278	252	0.07	504	0.14	756	0.21	1,008	0.28	1,260	0.35	2.5	0.7
1.5	1.500	347	0.09	694	0.18	1,041	0.27	1,388	0.36	1,735	0.45	3.5	0.9
2	1.939	580	0.15	1,160	0.3	1,740	0.45	2,320	0.60	2,900	0.75	5.8	1.5
2.5	2.323	833	0.22	1,666	0.44	2,500	0.66	3,332	0.88	4,165	1.1	8.3	2.2
3	2.900	1,300	0.34	2,600	0.68	3,900	1.0	5,200	1.36	6,500	1.7	13.0	3.4
4	3.826	2,260	0.6	4,520	1.2	6,780	1.8	9,040	2.4	11,300	3.0	22.6	6.0
6	5.761	5,120	1.35	10,240	2.7	15,360	4.1	29,480	5.4	25,600	6.8	51.2	13.5

\* Note unit change.



# **ATTACHMENT 5**

## **Statistical Analysis**



# **ATTACHMENT 6**

## **Monitoring Well Sampling Requirements**



NR = None Required  
A = Annually SA = Semi-annual

